

COMPUTERWORLD

THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY

Weekly Newspaper - Second-class postage paid at Boston, Mass.

Vol. 2 No. 31

July 31, 1968

Price: \$9/year



Data Video Taped

Using video tape to store documents, an operator, foreground, checks TV monitor display of a freight waybill which she is entering into the Videofile system. Waybill, positioned under the black lid in front of her, is being scanned by a TV camera and recorded by one of the tape transports, left background. With her right hand, the operator keys in a digital address for the document. Story on page 2.

CSC Orders \$50 Million Worth of Univac 1108s

LOS ANGELES, Calif. - Computer Sciences Corp. has ordered \$50 million worth of Univac 1108 computers, one for each of 20 planned regional time sharing centers. Deliveries will begin in September, the company said.

The first center will open in Los Angeles in September. The others will open at the rate of one a month, beginning in the second quarter of 1969, the company said.

CSC has announced it will offer its systems design and programming resources to clients of its new service bureaus. The first announcement of the network was made last month (CW, June 26).

Through terminal consoles installed on their premises, clients will be able to communicate directly with the nearest regional computer center and utilize integrated sets of pre-developed CSC programs to accomplish the task at hand, according to William R. Hoover, president of CSC's Computer Sciences Division.

In addition to Los Angeles, centers will be opened in these United States and Canadian cities: Atlanta, Boston, Calgary, Chicago, Cincinnati, Dallas, Denver, Detroit, Minneapolis, Montreal, New York, Orlando, Philadelphia, Pittsburgh, St. Louis, San Francisco, Seattle, Toronto, and Washington, D.C.

Have a Comment? Just Call Us!

To make it easier for our readers to express opinions *Computerworld* has set aside a special telephone to allow readers to call in comments for the Letters to the Editor Column. Just (617) 527-2711 day or and your opinions recorded on tape.

Joan Van Horn Upset

SB Owner Claims IBM Competition Is Unfair

WASHINGTON, D.C. - Joan Van Horn, president of a computer time sharing bureau here, charged Monday that her small, single computer operation was facing sudden extinction because of "unfair competition" by IBM. Her firm, she said, started in 1966, offered text editing time sharing services using standard IBM software months before IBM offered any equivalent services. Now, she claims, IBM suddenly has offered her customers a superior service using a proprietary software package which it has refused to make even temporarily available to her, free phone calls between Washington and Philadelphia, and a price structure that averages 30% under their previous charges.

"They called almost all our customers and prospects on the day they announced their new Data-Text service. Many of them were about to enter into annual contracts with us - but now they are just waiting until the new IBM service begins," Miss Van Horn asserted.

IBM told *Computerworld* its action was just "fair, vigorous competition."

Miss Van Horn charged that:

- IBM was offering rates that appeared to be below cost.
- IBM is charging her 2-1/2 times as much for her systems as it charges itself for "internal" use of a similar system, thus cutting

the overhead on its time sharing operation.

• IBM had given VIP Systems, an IBM customer, no advance information on the new service, so she had not had time to prepare to meet the competition.

• IBM has refused to give her the new Call/360 DataText software, thus forcing her to use the old IBM software while her supplier uses the latest software in competition with her business.

(Continued on Page 16)

MacPanel 2316 Deliveries Are First by Independent

HIGH POINT, N.C. - Mac Panel this week announced that it had delivered hundreds of its 2316 disk packs and "was not aware that any other independent was yet delivering them." This implied claim that they were the first in the field with "high stack" packs was upheld in discussions with other manufacturers. A statement from Athana Corp. was the most positive, saying that its deliveries hopefully will begin "in the next week or so." Other suppliers said their deliveries would be "later in the year" (John Morris of Memorex) and "sometime in September" (Caelus Memories).

Performance Gratifying

The new disk packs are designed for the 2314 IBM system and the Memorex 660 disk drives. There are 11 disks as opposed to six on the familiar 1316 disk pack, and they stand 6" high with a 14" diameter. Each pack can handle up to 29 million bytes, one record per disk packet.

Performance Gratifying

Donald Creede, president of Mac Panel, told *Computerworld* that they had already been able to get the delivery down to 30 days and that soon he hoped to get it to "off the shelf condition."

Performance reports already coming in indicated satisfactory performance and he believed that this was a testimonial to the precision achieved in the disk oxide formulations and the spin coating technique used. High stack disk packs have been going to both commercial and government installations.

Potter Joins Procurement Protest

SILVER SPRING, Md. - A new, and potentially powerful, ally for Bryant Computer Products appeared this week when Potter Instrument Co. came out publicly in support of Bryant's campaign to get independents the right to a share of the federal government's computer system business.

George B. McFarland, Washington area manager for Potter, told *Computerworld* that it was particularly difficult in this period of tight fiscal policy to understand why there was such government indifference to the economies that would be possible if independents were allowed to bid on portions of ADP systems procurements.

\$100,000 Savings Seen

He referred to the particular case of the Potter tape drives which are plug-to-plug and program-to-program interchangeable and said:

"Here is a unit which not only offers significant cost advantages,

but unquestionable technological advantages. It contains no gears, pulleys, belts, brakes, or clutches. It has no pinch rollers or prolay assemblies and requires no mechanical adjustments. It rewinds tape under vacuum control, preventing tape damage if power is interrupted. It has a simple straightforward tape path whereby the oxide touches only the magnetic head and tape cleaner. To date, commercial establishments have ordered over 600 units. The federal government has ordered none. Yet it could save hundreds of thousands of dollars this fiscal year by the direct

substitution of Potter drives."

Bryant Computer Products have been urging action on this matter for some months, but this is the first time another company has come publicly to the support of its position. Potter's support can be expected to bring further pressure on the government to take action both on the immediate aspect of purchasing from the independents and on overall procurement procedures. Bryant has asked the controller general to block award of a current, major Air Force procurement until all members of the computer industry are given "the right to bid on

any portion of it or any other systems."

Heros Needed

Both Bryant and Potter recognize that it is unlikely that the federal government will obtain (Continued on Page 2)

On the Inside

Common Airline System Near Approval, Page 7

GIS Compatibility Questioned, Page 11

Applications	7
Calendar	10
Contracts	8
Editorials	4
EDPeople	8
Education	9
Expansions	9
Financial	11-12
New Products	6
Orders and Installations	8
Services	9
Societies	10
Software	11

CW Index Down as Market Sags

Computerworld's Computer Stock Index closed July 19 at 142, down 9.4, or 6%, from the previous week, following a four day trading week that saw the entire stock market decline. With the exception of July 15, the Dow-Jones Industrial Average lost ground each day, closing at 913.92, off 8.54 points, or 0.93%. Volume on the New York Stock Exchange was 58,859,515 shares, off from 68,503,850 the previous week.

(Continued on Page 13)

RR Installs Video Tape Data System

SAN FRANCISCO, Calif. — The first commercial Ampex Videofile system, which uses television techniques to reduce conventional paper files to compact magnetic recordings on video tape, has been accepted after tests by the Southern Pacific Railroad. The \$750,000 system will permit faster filing and retrieval of the railroad company's freight waybills and related documents.

Similar systems are under construction for other customers.

The Southern Pacific Videofile system has a total capacity of more than 20 million documents and occupies only 1000 square feet of floor space, compared with 8000 square feet used for present paper files. More than 400,000 new waybills, abstracts, and corrections will be added to the file each month. Since railroads are required to keep waybills, documents describing each freight shipment, for four years, the filing job involved is enormous. Requests for information contained in the file are expected to average 100,000 per month.

Hard Copy in Seconds

In the Southern Pacific system, requests will be addressed on punched card for printout facsimile in hard copies in an average of six seconds. Other systems may be configured to permit file entries to be located and viewed on television screens.

Thirty six 8-1/2" x 11" documents may be recorded in one foot of 2" wide video tape. Documents larger than 11 inches may be recorded in sections. In Videofile systems generally, documents may be added to existing tape files wherever desired, because of the use of video tape. They may also be erased, relocated, or replaced electronically within the file without disturbing or altering the file itself. Southern Pacific's requirements, however, are satisfied by adding documents to the ends of existing tapes through the simultaneous use of up to six filing consoles.

Other Videofile system applications provide for simultaneous retrieval of information through several television viewing monitors or hard-copy printers. No file entry is ever "out."

The Southern Pacific system consists of six filing consoles, eight videotape transports, a facsimile printer, two video storage buffers, and a system control unit.

Document to Recording

This is how the system works:

An operator places a document on a glass plate. Underneath the plate is a television camera, which scans the document and converts its image to television signals. As a double check, the document's image is shown on a television monitor in front of the operator. The TV signals are sent through a central control unit to one of eight large tape transports and recorded on magnetic video tape.

A second set of signals, an address in computer codes, also is sent to the tape transport. These signals, keypunched in by the operator while the document was being televised, are also recorded on the tape, just in front of the document recording.

To retrieve the document, a punched card bearing its address code is fed into a card reader mounted on the tape transport. The reader tells the central control unit what address it has read; and, on the control unit's command, the tape transport then pinpoints the document by finding that address during a high speed search (380 inches per second)

through the tape. The tape search speed is twice that of most computer tape transports.

Once found, the document recording is played back by the transport into a buffer. A metal disk magnetically records the incoming signals. The disk later plays these recordings back into a specially developed printing device, which produces the document image on paper.

"Space Camera" Sharpness

Since television images are "written" with horizontal scan lines, more scan lines mean more detailed resolution of the picture. Good resolution is essential for the freight waybills and abstracts which arrive in the San Francisco office from all over the country. They are often soiled, wrinkled, and very hard to read, much less reproduce clearly. To achieve the resolution required at Southern Pacific, the Videofile cameras were built to provide twice the number of scan lines used in home television sets (1280 lines as opposed to 525 lines), a capability equalled only by the most precise space-craft television cameras.

The cameras also can sense and interpret light areas on the image by means of an electric eye, and they can make up for it to ensure that the document recording will convert back to a copy that will be uniformly clear and readable. Using built-in signal strengthening electronics, the cameras emphasize the weakly shaded areas to keep them in balance with the darker areas of the image.

TV Image on Paper

These high resolution factors built into the picture by the camera are reflected in the quality of the paper facsimile produced by the printer. A television tube in the printer reproduces the stored image by electrically printing scan lines on photosensitive paper.

Although comparable to standard office copiers in size and exterior design, the printer used at Southern Pacific is considerably easier to operate, since there is no prior paper handling in producing copies. Signals representing requested documents are fed to the printer automatically from the buffer, and clear copies are produced economically at the rate of 20 per minute.

About 125,000 document recordings are stored in 3600 feet of tape in a 12" tape reel. A comparable number of paper documents would require 12 four-drawer file cabinets for storage. A few tape reels hold all the waybills and related documents for a single month. The reels are then filed, by month and type of document, in Southern Pacific's tape library.

Flexible as Paper Files

Documents may be added to existing tape files, erased, relocated, or replaced within the file.

At Southern Pacific, documents are entered at random in the file, but the Videofile system can also be programmed to function with a category filing system. Selected categories of information can be recorded on specific sections of the tape for rapid retrieval of "like" documents. In such a program the buffer may temporarily record and sort input information by category before filing.

Further flexibility in the Videofile system allows use of monitors as well as printers, and both devices can be employed at the same locale as the filing station, or in outlying areas, remote from the central filing office.



Elaine Black keys in tape address of a document, which will be retrieved from the video tape unit, background, and reproduced in hard copy form. The card reader, right foreground, also can be used to feed document addresses to the tape unit.

Potter Protests Buying Policies

(Continued from Page 1)

any major savings this year unless some impetus for change can be generated in the hierarchy. As McFarland points out, people in marketing will be forced to visit each federal agency in turn, plead their case, and ferret out "the hero who will stick his neck out to change the status quo." All of this takes time, time during which the taxpayer pays a premium for this type of equipment.

Problem With Suppliers

McFarland recognizes that there are some theoretical justifications on the other side. These are the anticipated problems associated with multi-vendor systems. "Superficially the problems seem many and without solution. In reality they all reduce to the fact that two vendors will be blaming

each other's equipment while valuable production time is lost. This could conceivably happen in the case of tape drives if the computer had only one drive attached. With two or more drives on a system the faulty equipment can be determined with only the most elementary deductive reasoning. Of course, full advantage is also taken of existing IBM diagnostic tests and IBM field test equipment in localizing problems.

"In the final analysis the hard facts are that there are significant savings to be realized by utilization of equipment of this type. The element of risk associated with multi-vended systems has already been investigated and discounted by commercial users with profit and loss responsibility."

Stanford Research Gets FCC Contract for Study

MENLO PARK, Calif. — Stanford Research Institute has been awarded an FCC contract to conduct research and policy studies of computer communications, valued at \$500,000.

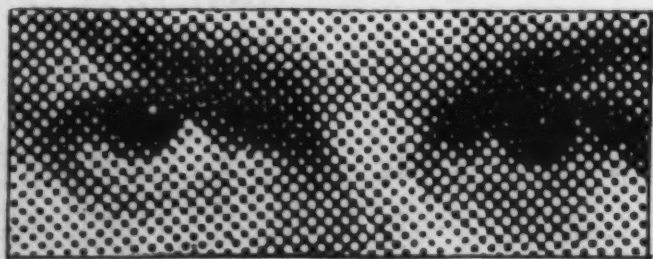
The project will include an examination of the regulatory and policy problems presented by the interdependence of computers and communications services, the subject of an FCC inquiry. The study is to be completed within six months.

Stanford was one of 24 bidders for the contract.

The study will consider and evaluate future trends and applications in the computer-communications area in light of responses filed with the FCC in connection with its investigation.

A second phase of the study will include a review of the commission's methods of allocating and assigning radio frequencies to determine what practical improvements could be made.

Next Week



....THE MID-YEAR REVIEW ISSUE....
"THE QUESTIONS ARE CHANGING"

New Law May Slay 'Paper Tigers'

NEW YORK — A recently enacted law, which applies directly only to the City of New York, may have surprising implications in the computer field by effectively outlawing paper tigers. The law relates to deceptive advertising practices and forbids anyone to use comparative prices or percentage savings unless he can show that the representations are "true in fact."

This item appears to cover "paper tiger" computers which are frequently referred to as being "x times faster than" some

other system before they are even built.

The law covers not merely any item in the sales contract but also any description in a catalog, pamphlet, letter, or anything else which a company either publishes or permits to be published. It would be possible, of course, to try not to sell anything in New York City, but that does not appear to be practical.

There is a possibility that the law, which went into force on July 1, will prove

impractical to enforce. New York City Markets Commissioner Gerard M. Weisberg, whose agency is required to enforce the new statute, has said that promulgation of such rules and regulations as might be necessary to carry out the purposes of the new law would come only after sufficient experience and appropriate discussions with trade and consumer groups. He is currently engaged in a series of meetings on the matter.

ACM in New York

An interesting sidelight is that the Association for Computing Machinery has its headquarters in New York City and many members may feel that corporate members of the society, which include most of the industry leaders, should follow a law which applies at ACM headquarters. This could provide the ACM Ethics Committee with an input which could be used to help set minimum standards for responsible advertising in the industry.



Charles Benton, Jr., new president of Computer Usage Co.

3 High Speed Drums Marketed

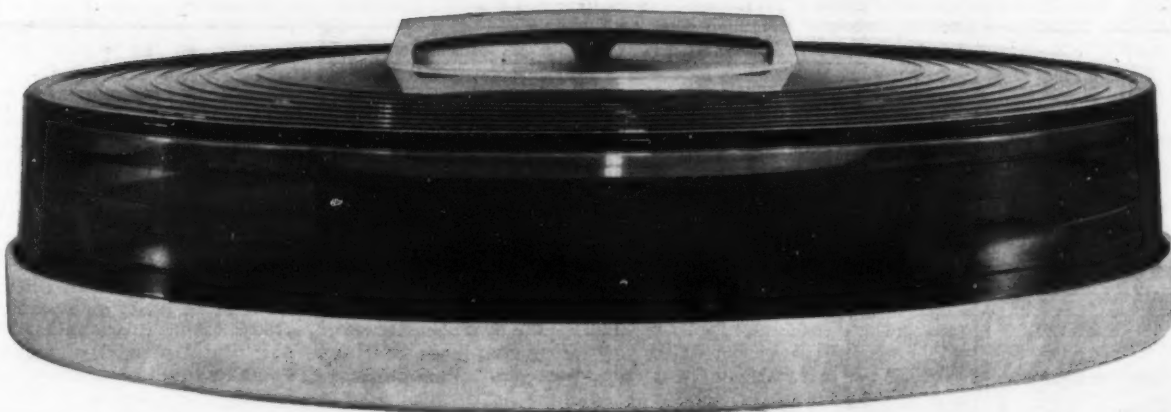
WELLESLEY HILLS, Mass. — Three high speed drums for mass data storage on H-1200 and larger Series 200 computer systems have been added by Honeywell.

The drums provide on-line storage of 2.1 million to 16.8 million characters.

The Type 265 and Type 266 drums store

2.1 million and 4.2 million characters of information, respectively, and transfer data to and from the computer at 300,000 characters per second. Average access time is 8.6 milliseconds. The Type 267 drum stores 4.2 million characters and transfers data at 1,200,000 characters per second.

\$300.00



The ATHANA 1316 Six-Disc Pack

The Athana 1316 Disc Pack meets or exceeds specifications and performance standards of the IBM 1316 Pack. This precision assembly of six magnetic oxide coated discs, provides ten recording surfaces. Each surface is manufactured under computer controlled procedures assuring a uniformity of excellence unsurpassed in the industry. This quality level further assures a repeatability of performance from surface to surface and disc to disc. The Athana Warranty: "For repair or replacement due to manufacturing defect for as long as you use it" is indicative of this quality assurance.

Disc Drives Compatible with Athana 1316 Disc Packs:

IBM	1311, 2311
Honeywell	H256, H258, H259, H259A
RCA	564
G.E.	DSU 160
C.D.C.	854, 952
Univac	8411

CONTACT YOUR ATHANA REPRESENTATIVE OR

ATHANA

East Coast: First Union National Bank Building • High Point, North Carolina 27260 • (919) 882-6861
West Coast: Suite 430-24 Union Bank Tower • Del Amo Financial Center • Torrance, California 90503 • (213) 772-4441

Benton to Head Both CUC, CUDC

MT. KISCO, N.Y. — Charles Benton, Jr., has been elected president and chief executive officer of Computer Usage Co. (CUC) and has been named to the board of directors.

Benton also has been elected president of Computer Usage Development Corp. (CUDC), the CUC subsidiary responsible for the management, application, and programming of data processing systems.

Elmer C. Kubie, a founder of CUC and president and chief executive officer since its inception in 1955, will continue as a board member and consultant to CUC.

Carl H. Reynolds, formerly president of CUDC and vice president and a board member of CUC, has resigned.

Copyright Bills Delayed Again

WASHINGTON, D.C. — The first revision of copyright legislation since 1909 has been put off for at least another year by a Congress racing toward adjournment.

Among the copyright problems needing resolution is the matter of copyrighted material input into computer assisted instruction systems. A bill passed by the Senate this year would have created a national commission on new technology uses of copyrighted work. It is now bottled up in a House judiciary subcommittee.

Another bill, which passed the House last year, has been bogged down in the Senate over problems related to community antenna television and performers' rights.

The commission idea, which is expected to be included in a new bill next year, provides for 23 members headed by the librarian of congress to study the copyright implications of technological advances. The commission would present an interim report in one year and a final report in three years.

Berlin Time Shares MIT 7094 Computer

BERLIN, Germany — The Technical University of Berlin will be on-line with a computer at the Massachusetts Institute of Technology as part of a summer conference being held here July 22-Aug. 2.

But the cable connected, time sharing demonstration will not set a distance record. MIT's IBM 7094 previously has been used for time sharing from as far away as Argentina, Scotland, and Norway.

Using the direct line from Berlin to Cambridge, Mass., MIT participants in the conference on the impact of computers on universities will be able to demonstrate various ways in which the time shared computer is being applied to teaching and research.

Editorials

It Should Have Been Obvious

It should have been obvious when hardware and software started separating that they would soon come together again. They are, after all, pretty inseparable. The only real thing which seemed to keep them apart was the claim that hardware firms simply could not produce good, efficient software.

This was, of course, a gross oversimplification. But it had enough truth in it to be persuasive. The software houses seemed to be independent of the hardware manufacturers — and were doing well. We were beginning to think in terms of two separate industries when the light dawned.

NCR entered the software field! The company bought the marketing rights to a good software package. Very reasonable: Its marketing force is excellent and large. Very useful: It gives NCR an entrance into many installations which are presently closed to it. Very obvious — by hindsight.

And so bang goes the two industry concept dividing our hardware and our software. We are back in a single computer industry, just where we began.

Thanks to NCR's pioneering.

***Protest Needs An Answer—
But The Answer Needs Work!***

The protest entered by Bryant Computer Products against the Air Force's computer procurement methods has some obvious merit. The current situation is that peripheral manufacturers in the industry do not have direct access to the customer who is the end user — and that the current procurement methods, both inside and outside government, are geared to an age when the end user did not have the knowledge or sophistication to use the products directly.

This time is gone, but procurement methods have not yet changed. This is not surprising, or blameworthy. The change has come fast. In handling the protest, therefore, the Air Force has a great opportunity to really come to grasp with the situation which exists, to make the great imaginative jump that is necessary before we can create a new procurement method, and to come out with a totally revamped system.

Computerworld hopes that the Air Force takes the opportunity.

COMPUTERWORLD

The Newsweekly for the Computer Community

TM Reg. U.S. Pat. Off.

Weekly Newspaper - Second Class Postage Paid at Boston, Mass. Published every Wednesday by COMPUTERWORLD, Inc., 60 Austin St., Newton, Mass. 02160. Telephone: (617) 332-5606 & TWX: 710-320-6635. Copyright 1968 by COMPUTERWORLD, Inc.

Alan Taylor, Editor in Chief. W. Walter Boyd, Managing Editor. Robert M. Patterson, News Editor. Neal Wilder, National Sales Manager. Henry Fling, Production Director. M. Phelan, Circulation Manager. Leete Doty, Associate Editor. Frederick Anderson Jr., Financial Editor. Joseph Hanlon, Kate Rachstein, Evelyn Cowell, Elly Tennenholtz: Assistant Editors. R. Ziegel, Position Announcement Manager. Patrick J. McGovern, Publisher.

Subscription rates are: \$9 for one year, \$16 for two years. Add \$1 per year for Canada; \$3 per year for Foreign. Please send all editorial and subscription material to: COMPUTERWORLD, 60 Austin St., Newton, Mass. 02160. (617) 332-5606.

Advertising Sales Offices:**New York City:**

Don Fagan
Grant Webb & Company
509 Madison Ave.
New York, N.Y. 10022
(212) 688-7550

Midwest:

Edward Sherinian
Grant Webb & Company
333 N. Michigan Ave.
Chicago, Ill. 60601
(312) 236-5817

San Francisco Area:

Bill Healey
Jules E. Thompson Co.
1111 Hearst Bldg.
San Francisco, Calif. 94103
(415) 362-8547

Los Angeles Area:

Bob Byrne
Sherwood/Byrne Assoc.
1017 N. La Cienega Blvd.
Los Angeles, Calif. 90069
(213) 657-6221

Elsewhere:

Neal Wilder
Robert Ziegel
COMPUTERWORLD
60 Austin St.
Newton, Mass. 02160
(617) 332-5606

Reproduction of material appearing in COMPUTERWORLD is strictly forbidden without written permission. Send all requests for permission to the Editor.

***'Wandering' Files Point Up
The Problems of Privacy***

One of the most disturbing aspects of the privacy question is not often discussed, yet it is perhaps one of which people in government circles are most aware. The problem is that of the "wandering" file, the file which arrives — unasked for — at a crucial moment in time and which affects a decision on a promotion, a hiring, a firing, or some other activity important to an individual.

Government officials hear of such cases in the course of day to day work and dread hearing of them. They don't talk about them in specific detail because such cases indicate that even within their own operations, people are taking actions (apparently deliberately) which effectively negate many of the carefully set up safeguards for individual privacy. This means that some government employees in trusted positions do not believe in the validity of these safeguards, or in following rules that are set down.

One such story, which comes from a well-known congressman, concerns a man who wanted to join one of our super-secret agencies. Not unnaturally, and as he expected, he was given all sorts of psychological tests, and one of the questions he was asked was whether or not he had ever had any homosexual experiences.

Told the Truth

He responded truthfully and in such a way as to give information rather than to withhold it. He told about the time, before he was 10 years of age, that an uncle had made advances toward him. He told of the advances and that he had immediately rejected them and how he had left the house. Whether or not this was relevant seems dubious, but he assumed that the agency would be able to evaluate the information properly.

Shortly afterwards, he was rejected, got over his disappointment, and went on his way to become a valuable expert in his own field. Sometime later he was approached by one of the ordinary agencies, one like the Post Office, and asked to take a senior appointment which would mean a considerable

drop in salary. His remembrance of Washington was not particularly pleasant, but he was reminded of his patriotic duty, and he agreed. Everything was set and he was about to be sworn in ceremoniously.

File Appears

Then a file arrived on the desk of his superior with a notation that he had been turned down by the super-secret agency because of potential homosexuality. The file had not been requested, and indeed had not been withdrawn in the usual manner by anyone with identifiable authority from its so-called secret position. But the superior now knew a misleading little bit about the man's history.

The man was not appointed to the position — because of the wandering file.

Few such cases are so dramatic, but many are equally disturbing. One such is the case in which details from a proposal to an agency are leaked across "impregnable" security barriers into the hands of other interested parties. This particularly applies to the personnel details that are given in these proposals, details of the experts who are going to do the job. Sometimes these people are not yet in the employ of the firm concerned — and sometimes they are going to join the firm only after it gets the contract.

Lax Security

How awkward it is for such people when, despite government regulations, this data arrives in the hands of their employer. It opens the way for all types of pressure — and it has happened.

Any privacy considerations should take into account this problem of the wandering file, even though it is not talked about. We like to think that the people who have access to various types of information do obey the rules — but experience says that this is not always so. The system must therefore allow for this factor so thoroughly that it is able to persuade some of the people in Washington that effective safeguards — not just window dressing — must be provided.

Letters to the Editor**Birthday Comment**

To the Editor:

My sincere congratulations to you and your entire staff for a job well done. Any newspaper in this day and age that starts one year ago and has the success and the admiration of the industry it represents, has to be considered number one. You are certainly to be congratulated, as everyone is talking about Computerworld and the fine job that has been done.

Neal Dempsey
Memorex Corp.
Santa Clara, Calif.

Everyone certainly is talking... (see below). Ed.

Gun Control Reviewed

To the Editor:

It seems to me that your recent editorial stand on firearms almost carries one back to the Dark Ages, when medieval courts solemnly condemned falling bricks, tree limbs, and other inanimate objects that caused harm to people. The blame for violence and murder should not be shifted to inanimate objects, such as firearms. The real problem is that violence itself has taken a startling upswing in recent years, as evidenced partially by the increasing number of persons in our lax and permissive society who

commit crimes with guns. As a life member in the National Rifle Association, an organization of a million sportsmen dedicated to the safe and sane use of firearms for recreational purposes, I feel that guns play only a minuscule role in the current tidal wave of violence.

One need only look as far as the nearest TV screen to find a major call to violence. Never before has the human mind been subjected to the explosive effects of so much viciousness and depravity played out before its eyes. The goriest atrocities are projected in gruesome detail as "news," and then warmed over in fiction form to serve as "entertainment." Television complicates the acute problems of guarding public officials. The noted psychiatrist Dr. Roger Peel has stated that projecting the image of the President to people prone to have delusions "makes the President a part of their delusional system," effectively making menaces out of many unstable people. The recent wave of assassinations can be attributed in part to television's keeping vividly fresh the details of the JFK assassination, among others, and making the idea of assassination part of the delusions of many unstable people. The same networks which have so frantically smeared legitimate gun ownership have televised gunplay, gore, and horror galore. The communications industry can

make a major contribution toward reducing violence by remembering that the First Amendment is no more a license to arouse criminal passions than the Second Amendment is a permit to misuse guns.

The latest tragedy in New York City committed by a man with a gun — not merely by a gun — points out the futility of attempting to stop violence by regulating guns. New York City has strict regulations on firearms, in fact, the strictest in the nation — yet twice in recent weeks has felt the effects of violent use of guns, on one occasion with a machine gun, a category of weapon outlawed effectively at the Federal level for over 35 years.

While I feel that guns are definitely not for everyone, I cannot support the type of legislation currently in Congress. I stand behind licensing of gun owners and curbing of mail order sales, but it would seem to be far more productive to provide help for the many disturbed members of our society than to locate, record, and control millions of guns — with less risk to the individual rights of our sportsmen and a greater chance of increasing public safety.

Zay B. Curtis
Revere, Mass.

(Continued on Page 5)

Inscribers Offer Choice of Key Punch Alternatives

This is the last in a series of articles on the new tape inscribers which are challenging the keypunch's role as the primary unit for preparing input. The first four parts appeared in the issues of May 29, June 5, 12, and 19.

In previous articles on the subject of keypunch replacements, we dealt with a number of the specialized items, including types of data, verification, and keyboard types.

To summarize: The whole area of keypunch replacement has become important primarily because of the announcement of the IBM Model 50. This announcement put the seal of approval of America's largest computer manufacturer on the idea of keying data directly onto magnetic tape for computer input. The Model 50 with its associated 2495 reader, which actually reads the tape into the computer, is a key unit. It has some major advantages over the various competitive units, notably the number of programs that can be used. A program card can hold up to eight different programs, more than can be handled by any competitive equipment.

However, the important fact is that there is now a choice of "whether or not." While there was only one keypunch, there are now many types of keypunch replacements.

The direct keypunch replacements are summarized in Table 1, which shows the type of tape that is used. In general, any tape that is not directly computer compatible — primarily the IBM Model 50 tape — can be read by a special unit. Computer compatible tape, of course, simply is mounted on the ordinary magnetic tape units. Most of these basic units can be obtained in many variations. Card readers, paper tape readers, adding machines, and other options can be added.

Communication Units

The next most important general purpose replacements are the communication units. These characteristically are keyboard units which have the additional capacity to communicate over voice grade lines. Only one communicating unit is normally needed for any location irrespective of the number of keying units. When it is time to transmit, it is quite simple to load the tapes produced by the keying units onto the communication unit.

One point to remember about remote operations: there is a shortage of skilled, keypunch trained labor. Some of the units which have typewriter style keyboards are being operated effectively and economically by typists. These units are summarized in Table 2. Again, many variations are possible.

New Units Announced

The area is developing fast and readers checking the tables above

Inscriber Family Grows

The newest entry into the keypunch replacement market is surprising on two accounts, and unusual on a third. The Facit 6000 is unusual because this is an import, made in Sweden and marketed here by a network of dealers. It is surprising because it does not use the key punch keyboard but instead uses a typewriter (verification is done on the hard copy), and also because the price is just \$4000, as opposed to a standard price of more than \$7000. All of this adds up to an interesting unit. First deliveries are due to start in about two months.

After this series was started, new units were announced — the Systronic Key-Cassette and the Facit 6001 and 6002 systems.

The Systronic unit, described in detail in the July 10 issue, basically consists of two tape cassettes which operate like miniature tape units, a display screen, and a flexibly arranged keyboard. One cassette is used for writing data, the other holds in-

structions to help the operator. It is called "Teachware" by the firm. The data can be keyed in the most suitable arrangement for the operator and then rearranged by the unit so that it reaches the computer in standard formats.

The Facit units are just being introduced into this country, and are being supported by a network of dealers with EDP experience. They have been in production and use for some years in Europe. A particularly interesting item about them (outside of the price!) is the technique used to put the code on the tape — and to ensure that it is the same as the printed character which the typist sees and checks.

The unit uses a photoelectric read unit which has seven photocells, corresponding to the seven bits of a character. An eighth photocell checks for parity. When a key is depressed and the type bar goes forward onto the paper, holes in the bar permit the read unit to identify the character actually typed.

Characteristics of Tape Inscribers

Unit	Basic Model	Computer Tape?	Program Entry Method	Purchase	Monthly Rental
Mohawk Data Recorder*	1101	Yes	Tape-Length	\$7200	\$120
Honeywell KeyTape	K-700	Yes	Manual	7250	148
IBM Data Inscrber	50	No**	Program Card	9900	180
Sangamo Data Station	7100	Yes	Manual	7640	131
Systronic Key-Cassette		Yes	Program Cassette	6000	—
Facit	6001	Yes	Manual	4000	?

*Also marketed through NCR

**Requires an IBM 2495 on the System 360 (Purchase \$19,250, and rental \$350 per month)

Table 1. The basic units which can replace keypunches

System	Communication Unit	Compatible Keying Unit	Computer Tape	Type of Keyboard	Prices			
					Communication Unit Purchase	Unit Rental	Keying Purchase	Unit Rental
Communitype	100SR	100RO	No	Typewriter	\$11,600	\$395	\$10,600	\$355
Mohawk	1103	1101	Yes	Keypunch	9,750	195	7,200	120
Sangamo	7300	DS 7100	Yes	Keypunch	9,550	189	7,640	254
Tally	Data Terminal	—	No	Typewriter	9,850	322	7,650	254

Table 2. The units which replace keypunches directly and are designed to fit into communication systems.

Letters to the Editor

More on Gun Control

To the Editor:

I have neither the time nor the inclination to get involved in editorializing, however, I must vehemently protest the piece of garbage you saw fit to permeate what appears to be a respectable trade journal.

I am referring to page 4 of your July 17, 1968 issue which depicts political brain washing.

I find it difficult to comprehend what relationship bullets have to computers as you depict.

We are plagued with the conventional media which perpetuates emotional mass hysteria which unfortunately causes the passage of additional restrictive legislation.

Continued restrictive legislation will inevitably lead to mass assassination.

Perhaps some of our problems could be reduced by the elimination of the present restrictive laws which have been gradually oxidizing our freedom.

Please, do not let what could be a good trade journal reduce itself to another journalistic rag.

I feel that my subscription must be terminated if garbage like this continues.

Please do honor me with a reply to this complaint.

Milton Darmofal
Data Processing Manager
Argo Mills Div.
American Argo Corp.
Schuylkill Haven, Pa.

CC National Rifle Assoc.

A free press is one of the prime safeguards against oxidation of our freedom. Like *Datamation*, *Business Automation*, *Science and Technology*, and the *Wall*

Street Journal, we believe we have a responsibility to comment occasionally on national issues which affect us all. Ed.

GIS Timings Questioned

To the Editor:

In reference to your June 26 article on GIS:

Those compile times seem awfully high to me. There seems to be high overhead since five (simple) statements take almost as much time as the 17 (complex) statements. Note that each of the five statements essentially appears among the 17. Perhaps this comment should be better directed to IBM rather than you.

Any data on queries 2 through 10?

Name Withheld by Request

More on GIS

To the Editor:

In re "Preliminary GIS Timings Released":

Very good report — pertinent data on a timely subject.

P.A.
Pittsburgh, Pa.

Telephone Your Letters

Now you can call in your letters to the editor. Just call (617) 527-2711 and your comments will be taped. If you prefer to write, address letters to:

Editor, *Computerworld*, 60 Austin St., Newton, Mass. 02160.

TLW Computerworld Corner

COMPUTERS FOR SALE

INDUSTRY

- | | |
|--|--------------|
| Item 1: 1401 E6, 1402-1, 1403-2, Advanced Programming, Print Storage, Hi-Lo Equal, Additional Print Control. AVAILABLE 30 days | Utility |
| Item 2: 360/20 MOD C-1, 8K, 2560 Model A-1, 2203 Printer. AVAILABLE 30 days | Construction |
| Item 3: 1401 C4, 1402-1, 1403-2, 1406-1, 4-729II's. Advanced Programming, Print storage, Numerical print, Hi-Lo Equal, and others. AVAILABLE 11/68 | Banking |
| Item 4: 729-V's Mag Tape Units. AVAILABLE Immediately | |
| Item 5: IBM 1620-20K and 1620-40K. Additional Instructions. Auto Divide Indirect Address. 1622-1 AVAILABLE 30 days | School |

Ask us about programs available with computers

List your computers with
Box 29763 Atlanta, Ga. 30329
404-633-2579

TLW Corp.

Hand Held Electric Keypunch Can Be Carried to the Task

A magnetic tape drive that can accept data from a keyboard or other incremental source and later read it directly into a computer is now in production. The hybrid unit is one of a new series of write and/or read units which can be ordered for either 8-1/2" or 10-1/2" reels. The data format is compatible with IBM 360 requirements for 9 bit, 800 bpi operation. Tape marks, gaps, parities, and cyclic redundancy checks where required, are internally generated. The incremental speeds are 350, 500, 700, and 1000 cps at densities of 200, 556, and 800 bpi. The synchronous speeds range from 1 to 25 ips at densities of 200, 556, and 800 bpi. Peripheral Equipment Corp., 9551 Irondale Ave., Chatsworth, Calif. 91311.

Portable Keypunch

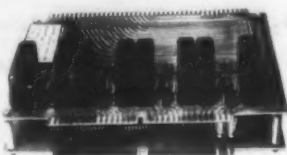


An electric portable keypunch, the Model 400 Vari-Punch, priced at \$450, provides on the job recording. A tab set button automatically sets and controls pre-selected positions. A column indicator provides a visual check of the column punched. Above this indicator is a slot for insertion of a strip of a programmed card for the operator's guidance in field selection. The unit is available in a choice of 12 key adding machine

New Products

or tabulator keyboards with space and tab buttons. It weighs 6 lbs. and measures 8" x 5" x 3". Varifab Inc. (Subsidiary of Condec Corp.), High Falls, N.Y.

Core Memory



A new core memory system with 10 microsecond cycle time and a capacity of 160, 16 bit words has been designed for use as a low cost buffer in keypunch to tape and high speed printer applications. The Data-Stor 100 operates on ± 5 volt power and features decimal address logic and modular construction. Total maximum dissipation is 6 watts and less than 3 watts in typical keypunch to tape applications. Data-Ram Corp., Route 206, Princeton, N.J. 08540.

Manual Punch

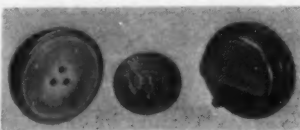
A manual card punch, Micro Punch 461, is an 8 pound device developed to punch up to 8 columns of numeric data simultaneously on standard 80 column cards. A removable program bar is slotted to control the punching area as required by the operator. The keyboard allows the operator visually to check the input prior to punching, and an interpreting feature allows for verification. Data Devices, Inc., 18666

Topham St., Tarzana, Calif. 91356.

Laser Plotter

A new on-line plotter employs a laser optics system to produce high resolution drawings in black and white or 14 intermediate grays at computer speeds. The unit uses roll film 100 feet in length and 40 inches wide as a print surface. Large continuous tone or line cartographic displays with words, letters, or numerals can be plotted in any dimension or slant, top to bottom, with 5 mil resolution. Dresser SIE, 10201 Westheimer, Houston, Texas 77042.

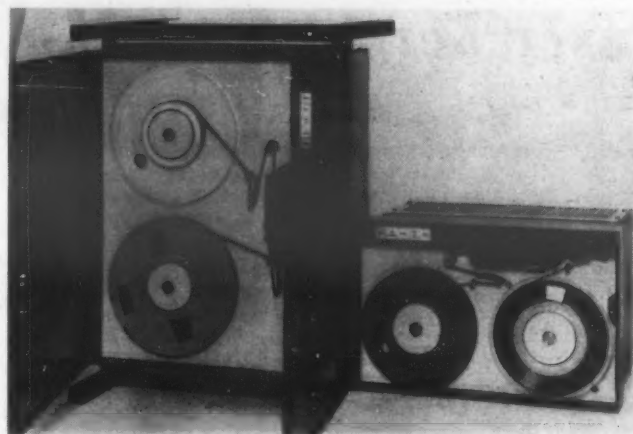
Sonic Signal Source



A new sonic signal source, Bleepone, for use with data processing and business machinery as well as other industries, is designed to operate on 2 to 16 volts D.C. with low current drain (3 to 20 MA), and emits a signal of 66 db to 89 db in the 2200 Hz to 2600 Hz range. C.A. Briggs Co., P.O. Box 151, Glenside, Pa. 19038.

Plastic Badge

A new vinyl plastic badge, for use in recording job time via the IBM 357 data collection system, measures 2-3/8" x 3-1/4" x .030" thick. The badge is available in various colors and can be supplied either printed or blank. Matte finish provides a suitable



Peripheral Equipment's new tape transports can be ordered for 10 1/2" reels, left, or 8 1/2" reels.

surface for pencilling in the operator's name and other pertinent data. Allegheny Plastics, Inc., Thorn Run Rd., Coraopolis, Pa. 15108.

Tape Reader/Spooler

A photoelectric punched tape reader, Model RR-1002, and matching tape spooler, Model RS-1000, are available in unidirectional and bidirectional models with 10-1/2" diameter reels having storage capacities of up to 2040' of tape. The reader is available with several output and drive modes including integrated circuit compatible modes. Delivery is eight weeks after receipt of order. Remex Electronics, 5250 W. El Segundo Blvd., Hawthorne, Calif. 90250.

Magnetic Tape Transport

A new magnetic tape drive for specialized audio, instrumentation, and communications applications has independent reel servos, constant tension push-pull tape handling and direct drive capstan servos that can be controlled from its own internal

oscillator or from an external source. The variable speed features provide control for monitoring any given application, such as fast recording with slow playback for analysis, or vice versa, or in any desired combinations. The unit can also be configured in an endless loop version. Magnetic Recording Systems, Inc., 80 Urban Ave., Westbury, N.Y. 11590.

Circuit Selector

A new programming circuit selector, Slide 'n Switch, has been designed to provide random access switching for programming automated equipment. Standard single units are 11 position, single pole switches which can switch from any position to another position without contracting intermediate switch steps during the operation. Multiple units may be stacked side by side to provide any practical number of decade switches. Printed circuit construction permits special electrical coding to be supplied. Programming Devices Div., Sealectro Corp., 225 Hoyt St., Mamaronock, N.Y. 10543.

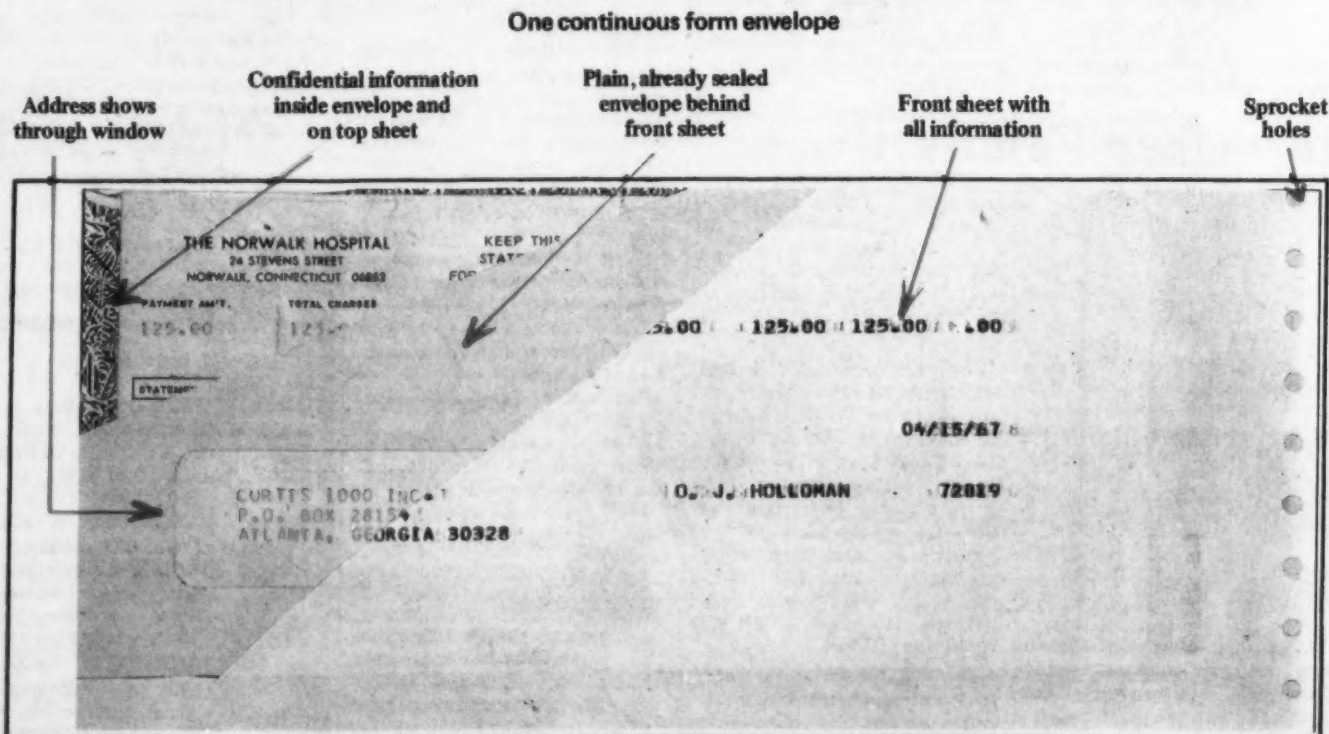
Direct Mail System Uses NCR Paper

ATLANTA, Ga. — A new product allows standard, but individualized mailings to be made straight from a high speed printer without the use of carbon paper. It is particularly recommended by the makers, Curtis-1000, for billing jobs, where security of information and cleanliness of presentation is important.

The method used is to package continuous, pre-stuffed envelopes behind a front sheet. The front sheet receives the printing, in full, from the printer. The next "surface," the front of the envelope, receives no printing at all. The third surface, the top item which has been stuffed into the envelope, is the individualized part of the mailing — normally a bill or something else which has specialized information on it. This is made of one-ply NCR (no carbon required) paper, or the equivalent, which prints when pressure is applied. The address printing is naturally placed to fall behind the envelope window, through which it can be seen, while the amount of the bill or any other private information is placed so that it cannot be seen.

No Stray Marks

One of the general objections to such a system has been the possibility of other markings being added later since all anyone has to do to add marks inside is to write



on the outside of the envelope. Curtis representatives have told *Computerworld* that in practice this does not seem to happen with their system. Samples which had been through the mails occasionally showed a light-blue tinge

to the paper, but no obscuring of the printing, they said.

The Competition

The Century 1000 forms are the third such pre-packaged invoicing set on the market. The other two are manufactured by the giants of

the forms business — Moore (the Speedimailer System) and Uarco (the Data-Mailer).

Moore Business Forms, Inc. also manufactures their Speedimailer packages with pressure sensitive paper, eliminating the need for

carbon spotting. Both the Moore and Uarco systems appear to have the advantage of being able to add unlimited numbers of carbon-spotted over-sheets that can be used for internal accounting procedures.

Air Reservation System Approval Near

NEW YORK — A common, automated airlines reservation system that would access individual airline systems is close to reality, according to Frank Wagner, president of Atar Computer Systems, Inc. His company has been selected by the Air Traffic Conference of the Air Traffic Association to negotiate with domestic airlines for the establishment of such a system.

The system would give travel agents as well as airline reservation clerks direct access to all airline seats.

Once agreements are obtained from 10 of the 30 ATC members, flying at least half of U.S. passenger miles, Atar will make its Automated Travel Agency Reservation System (Atars) operational "within a maximum of 11 months after Civil Aeronautics Board approval," Wagner said.

One of Three Proposals

An ATA spokesman in Washington, D.C., told *Computerworld* that the ATC had approved Atars in late April over similar systems proposed by Control Data and Ruben H. Donnelly. (Control Data didn't publicly announce its proposed Safir system until June 25.)

The final wording of the contract which each airline that wants to join the system will sign was approved recently by Atar and the ATC, but how many, if any, airlines had so far signed the contract was not known at press time.

A spokesman in the Boston office of American Airlines, which has Sabre, the oldest and largest automated reservations system, told *Computerworld* that American planned to join in with the rest of the airline industry in adopting a common reservations system.

Common Interface

According to Leonard Klarich, marketing vice president for Atar, the system is basically an interface that fully meets the

requirements of both airlines and users and is compatible with existing on-line systems.

But, Klarich said, the system is more than just a simple interface as it will contain schedules for all participating airlines, which will be updated nightly, and will also contain information as to the availability of space on various flights.

Where Atars will vary from existing automated airline reservation systems is that it will not keep records of passengers' names and other ticket information or know the exact number of seats available on a given flight, he said.

Booking Agency

Atars will merely act as a central booking agency for the various airlines' own reservation systems, passing along to them the information they require, and they in turn will notify Atars when no more seats are available on a specific flight.

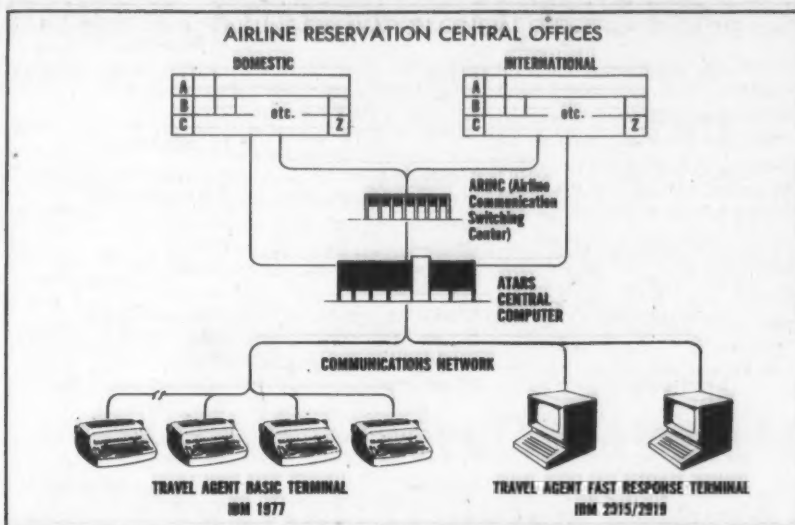
Atars would be as up to date as each participating airline's own reservation system, Klarich said.

The system eliminates the need for travel agents — who are responsible for 30 - 35% of the total value of all domestic airline tickets written in the U.S. — to call airline agency desks to determine flight availability, ask for up to date schedules, book passengers, enter passenger name records, and supply other supplementary information.

Atars will increase airline efficiency when used for interline bookings and greatly reduce the chances of over-bookings through human error, an Atar spokesman said.

Control Retained

Under Atars, each airline will continue to have control over its own space and safeguards will be programmed into the system to prevent access to competitive airline and agency information, he said.



The basic Atars system is composed of four modular parts: The travel agent with his means of communicating with the system via the Atars terminal, similar to a typewriter; the Atars computer center, where all airline data is stored and maintained; Arinc (airline communication switching center), the communications link to each airline; and the various airline reservation offices and other subscribers.

With Atars, the travel agent, rather than using the telephone to fill an order, would tap a few keys on a terminal in his office, and the unit would respond in a maximum of three seconds with current flight availability over all of the routes in which he is interested.

Then, when the itinerary has been planned, the agent simply would enter the passenger's name and any other special required service, and then indicate to Atars that the transaction was complete. Atars would take over from this point and instantly notify all airlines involved of any

action which had to be taken.

Wagner said that implementation of Atars will include:

- Installation of a central data bank consisting of two IBM 360/65 systems in the Los Angeles, Calif., area which will be connected to the reservations systems of individual airlines via leased high speed telephone line or via Arinc. The software will include IBM's Pars (programmed airline reservation system).

- Installation of agent consoles — either an IBM 1977 or an IBM 2915 — in travel agency offices, in travel departments of commercial firms, and possibly in airline reservation offices. These will be connected to the central data bank via terminal interchanges located in major airline markets.

IBM will provide maintenance for the entire system, he said.

The first agent consoles are expected to be operational in 1969, Wagner said.

Flight Controllers Get Aid From a Computer System

JAMAICA, N.Y. — Traffic control in the world's busiest air traffic complex is now handled at one combined facility. Previously, each of the three major New York airports (Kennedy, LaGuardia, and Newark) had its own independent operating quarters.

The new computer aided system shows all IFR (instrument flight rules) traffic in the New York area on screens in one centralized air traffic room at Kennedy Airport. The system is being phased in slowly to allow for training of controllers, and will not be in full operation for nine months.

Currently, the screens show just the usual radar blip giving the location of the plane, and flight controllers must remember all other information about the aircraft and associate it with the blip.

When the new system is in full operation, however, an alphanumeric tag on the screen will show the aircraft identity, altitude, and speed. The tag will be next to the blip and will follow it as the aircraft maneuvers through the terminal area.

Louis F. Leon, Chief of the new room (called the Common IFR Room) stressed that the new system will not allow the controllers to handle more planes. It is an aid to the controllers and will eliminate the "mental gymnastics" that the controllers were previously forced to go through.

Leon also told *Computerworld* that the new system is unrelated to the current tieups in the New York area, in which incoming flights on Sunday evenings have been delayed by as much as two hours.

Automatic Reporting

Many commercial aircraft are equipped with transponders capable of reporting identity and altitude. A beacon system acquires data from transponder-equipped aircraft. From beacon replies, it is also possible to determine position. For planes not equipped with transponders, radar determines position; altitude and identity come from pilot reports. Speed is computed by comparing successive beacon or radar reports.

Neither the radar nor the beacon replies can be used directly by the computer, so a Burroughs video digitizer is used to translate data into digital form.

The new facility uses two Univac 1219 computers. One processes radar or beacon tracking data from each aircraft. The other



A view of the Common IFR Room at Kennedy Airport. The two large screens in the background show all aircraft flying under instrument flight rules in the New York area.

generates information for the displays and updates the displays every 2.5 seconds. The system can track up to 250 aircraft.

10 Display Screens

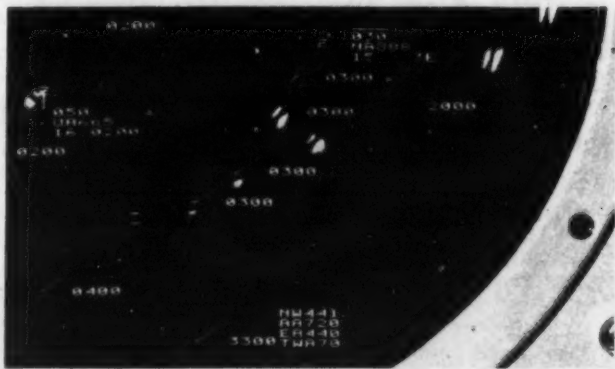
The Common IFR Room is equipped with eight individual displays and two large screen (9' x 12') projection displays. Each small console is used by an individual controller, and contains data tags only for those planes under his control. When responsibility for an aircraft is transferred from one controller to another, the former pushes a button causing that plane's tag to appear on the other controller's display. The recipient pushes a button signifying that he has accepted the plane. Thus, transfers

can be accomplished by computer, with little or no verbal communication.

The system will provide other aids for the controller. If aircraft altitude as reported by the beacon differs by more than 200 feet from the assigned altitude, a blinking square is displayed to alert the controller. If the controller assigns a new altitude to a plane, he can display the assigned altitude and an up or down arrow.

Data Tags

The data tags have several special codes: a dashed line over the data indicates a plane involved in a transfer; a solid line over the data indicates a plane that requires special attention.



A portion of one air controller's video display. Data tags give information on each flight for which the controller is responsible. For example, plane in center is National Airlines flight 888, flying at 3000 feet and a speed of 150 knots. Bar on data tag indicates special status. The letter "Z" next to the radar blip indicates that controller Z is in charge of the plane. List near bottom of screen is of aircraft due to enter area within the next 10 minutes.

EDPeople

IS NOW		AT	WAS	AT
D.E. Wignall	Manager of Systems	Computer Results Corp.	(Information not available)	IBM
T.R. Gildersleeve	Manager Education Projects	W. Springfield, Mass.	Project Manager	Hartford, Conn.
R.J. Hartig	Marketing Manager	Computer Usage Education	Systems Programming	UNIVAC
R.W. Fletcher	Product Manager	Mt. Kisco, N.Y.	Branch Manager	Honeywell EDP
M.T. Verbick	Commercial Magnetics	Comress, Inc.	Section Manager	Los Angeles
Dr. R.J. Talham	Director Systems and Data Processing	Pittsburgh, Pa.	Special Memory Applications	Honeywell
J.N. Taussig	Manager Eastern Engineering Laboratory	Electronic Memories	Corporate Manager	Computer Control Div.
T.R. Shaw	General Manager	Hawthorne, Calif.	Systems and Data Processing	Sunbeam Corp.
J.D. Tupac	Senior Associate Systems Department	Playboy	Manager Undersea Defense Systems Engineering	General Electric
G.A. Lane	President	Chicago, Ill.	Director	Syracuse, N.Y.
John Granbery	Manager Western Sales	Librascope Group	Project Scientist	Management Science
E.L. Podsiadlo	Senior Sales Engineer	General Precision Systems	Manager Computing Services	Training Inst.
G.M. Heilrung	Vice President Marketing	Boston, Mass.	(Information not available)	Booz Allen Applied
	Western Regional Director	Brandon Systems Inst.	Manager Market Development	Research, Inc.
		New York	Product Manager Memory Systems	Rand Corporation
		Planning Research Corp.	District Manager	Santa Monica, Calif.
		Washington, D.C.		Computer Industries
		PRC Computer Center		Van Nuys, Calif.
		McLean, Va.		Medinet Dept.
		Raytheon		General Electric
		Santa Ana, Calif.		Ferroxcube Corp.
		Raytheon		
		Waltham, Mass.		
		Data-Ram Corp.		
		Princeton, N.J.		
		Scientific Control Corp.		
		Palo Alto, Calif.		
				Scientific Data Systems
				San Francisco, Calif.



M.T. Verbick



R.J. Talham



J.N. Taussig



T.R. Shaw



J.D. Tupac



G.A. Lane



E.L. Podsiadlo

System to Control Brightness of Firm's Paper Pulp

The American Can Co. has ordered a CDC 1700 computer system for its Naheola, Ala., paper bleaching plant. The computer will handle mixing of chemicals and control of brightness of the paper pulp product.

The Albuquerque, N.M., public school system has installed a Honeywell 1200 system to replace an IBM 1401. The system will be used for library processing, test scoring, grade reporting, and accounting tasks for 80,000 students. All programs from the old system have been translated and checked out. New programs will be written in Cobol and Fortran.

A real-time software package for a multi-site Automatic Radar Control and Data Equipment System has been delivered and checked out by Control Technology, Inc. for the Army Missile Systems Command, White Sands Missile Proving Ground, New Mexico. The project integrates a central radar site with three remote fixed and two mobile radar sites. The central site uses an IBM 7094 computer; each of the remote sites is equipped with a Varian 6201 computer.

The British Post Office has placed an order for \$2.4 million worth of data transmitting equipment with ITT Standard Telephones and Cables Ltd. The modems will enable the post office to satisfy the increasing demand by British computer communication users for data transmission facilities at a variety of line speeds.

The Delco-Remy Division of General Motors, Anderson, Ind., has ordered a digital drafting system from the Graphics Systems Division of Computer Industries, Inc. The system will provide computerized drawings for use in an optical milling machine that cuts cams for electrical ignition systems.

Two Illiac III core memory systems have been shipped to the University of Illinois from Fabrik-Tek, Inc. for use in its new Illiac III computer system. Magnetic modules in the system feature plug-in units including the core memory stacks.

The Grocers Supply Co., Indian-

Orders and Installations

apolis, Ind., has ordered a Univac 9200 computer for use with two 8410 direct access storage subsystems. The system will be used for billing, inventory control, and related applications.

Professional Data Service, Cleveland, Ohio, has installed a Univac 9200 computer. The system will be used with a 1001

card controller, a card reader, and card punch. The firm provides services to professional people such as doctors and lawyers.

Almart Stores, a division of Allied Stores, New York, has installed a Digitronics data and message transmission system to be used with the Model 507 paper tape transmitter, the Model 522 magnetic tape terminal, and the Model 509 paper tape receiver. The system links the company's EDP center in New York City with its nationwide chain of discount stores.

Zenith Integrated Data Processing, Sacramento, Calif., a service bureau, has ordered a Honeywell Model 110 system to replace a 1401. The system will be used for accounting and billing applications.

Keystone Gets Telephone Book System Work

WILLOW GROVE, Pa. — Keystone Computer Associates, a subsidiary of University Computing Co., has been contracted by Bell Telephone Laboratories to work on DIR/ECT, the automation of telephone directory operations.

Keystone is performing both systems design and programming for IBM System/360 and RCA

CONTRACTS

Spectra 70 computers to produce customer directories, traffic records, and directory delivery distribution lists.

Computer graphic arts techniques for page composition and the retention of customer listings on mass storage devices for on-line inquiry for video terminals are provisions of the new system.

Aerial Delivery System Contract Awarded

DALLAS, Texas — The Air Force has awarded a contract with initial funding of \$3.7 million to Texas Instruments Inc. for development and production of the Adverse Weather Aerial Delivery System (Awads). The multi-year contract will total more than \$30 million.

Designed for use in the C-130E aircraft, the system will convert the huge transport into a tactical avionics system capable of delivering troops and supplies to any place in the world under adverse weather conditions.

TI will supply three prototype systems and 39 production systems over a three year period.

Blue Shield System Under Outside Review

LOS ANGELES, Calif. — California Blue Shield (California Physicians' Service) has retained Planning Research Corp. to review its current Standard Business System.

In analyzing the system, the Planning Research team is documenting its flow rates, file size, and file access requirements. Data from Blue Shield sales, underwriting, membership, and accounting will be used to determine the company's workloads — projected five years into the future — and to review new or anticipated functions of the system.

in LOS ANGELES call:
datagraphic
COMPUTER SERVICE INC.

- ONE OF THE BEST SERVICE BUREAUS IN TOWN
- OPEN 24 HOURS
- IBM 360-30
 - 64 K MEMORY
 - 5 TAPES (1-7, 4-9 CHANNEL)
 - 2 DISC
 - MANY OTHER FEATURES
- 40-029/059 KEYPUNCH-VERIFIERS
- 5 SR. SYSTEM ANALYST/PROGRAMMERS
- REASONABLE RATES
- GUARANTEED ACCURACY & SCHEDULES
- NEED WE SAY MORE?

(213) 875-1033 (213) 983-0151
11250 SHERMAN WAY SUN VALLEY, CALIF.
1/2 MI. FROM THE HOLLYWOOD
AND GOLDEN STATE FREEWAYS

1401 AND 1410 SYSTEMS FOR SALE

IPS has a number of attractively priced 1401 and 1410 systems for delivery in the next 60 days. Several systems are available with and without tape units. Among the 1401's (all tape-oriented, with 1402 and 1403) are a 12K system with 4 729 V's, a 4K C-3 system, a 12K with 2 7330's, an 8K and a 12K without tapes. 1410 systems include a 40K system with 10 729's, a 40K CPU only, and a 40K with 1402, 1403, and 5 729 V's available on a lease basis. We will be happy to supply detailed specifications and prices on request.

IPS

INFORMATION PROCESSING SYSTEMS, INC.
200 WEST 87TH STREET NEW YORK N.Y. 10019 (212) CIRCLE 6-2267



Fabri-Tek President William F. Foss, right, and James Hummel, director of the firm's educational products division, with the company's new Com-Tran Eight computer system.

Firm Buys Design, Rights To Educational Computer

MINNEAPOLIS, Minn. — Fabri-Tek Inc., manufacturer of computer memory systems, has expanded its educational products line with the acquisition of a new computer system from Pro-Data Computer Services, Inc., Long Branch, N.J.

The new computer system, to be called the Com-Tran Eight, will sell in the \$20,000 price range. Included in the purchase were all the designs, software, and instructional materials. This "teachware" includes a complete set of instructional materials for using the hardware and software, course outlines, lesson plans and problem books, student reference manuals, visual aids, and classroom demonstration programs.

The system's hardware consists of a small scale, third generation computer with a memory capacity of 8K bytes expandable to 65K bytes. The basic system includes a teletypewriter for either keyboard or paper tape input and either printed or punched tape output.

Manufacturer's Should Give Educators More Support

By Bernard J. Luskin
Orange Coast College

While teaching data processing or information technology the question constantly comes up, "Why do you lean so heavily on IBM hardware and the technicalities of IBM equipment?"

Discounting the fact that IBM has the lion's share of the market, and therefore students trained on that equipment are more readily employable than those thoroughly indoctrinated on other hardware, a prime reason that IBM equipment is used in most examples is that the other manufacturers make very little effort to supply details of their hardware and developments to instructional staffs, and they provide very little in the way of aids or guides with which one can work.

Try as one might, all that can be gotten from many manufacturers are valueless sales brochures, technical manuals which are no good without access to the hardware, inane promotional films, minimal response and long delays in replying to requests, and in short: very little support. Those in the education field would appreciate some support and some form of detailing.

Detail Men Needed

Being detailed, it seems to me, is a form of education which allows

one to keep current. In the medical profession, where new developments are occurring constantly, the pharmaceutical house salesman is also a detail man. The detail man spends time with the pharmacist or the M.D. bringing him up to date quickly on new developments, and he provides quickly read, simply presented information which can be developed later by more technical reading. The concept of detailing in a true sense is one which does

not really exist in educational data processing. Implementation of this concept, plus the provision of well prepared, clearly usable aids is an excellent form of advertising for a company to use, and can serve a vitally useful purpose for those engaged in the educational aspect of data processing. One might wonder about the answer to the question, "Why is this not done by other manufacturers?"

Blind Students Complete Special Training Course

SANTA MONICA, Calif. — Twelve blind students have successfully completed a rigid course in computer programming at Systems Development Corp. (SDC).

Five of the students already have been hired in the Southern California area. The other graduates are being interviewed by employers throughout the state.

The programmers are clients of the State Rehabilitation Department's Division of Rehabilitation of the Blind and constitute the second class of blind students to be trained under contract with SDS. The first class was graduated in June 1967.

Careful Selection

Commenting on the caliber of the students, David R. Mendelson, chief of the division, said, "The advanced computer programming work that the blind students have learned demands resourcefulness and creativity that are above average. The students we selected were from the top 10% of candidates applying for the program. All of them have had two or more years of college, majoring in mathematics or science."

The graduates are legally blind although some have partial or limited sight. The impairments to their vision, however, do not handicap them in becoming skillful, productive, self-sufficient persons.

Homework in Braille

For nearly nine months the students spent 120 classroom hours each month in learning scientific and commercial methods of programming. Their studies covered design theory, systems analysis, and computer assembly language. They also spent hundreds of hours in homework on braille readings and tape recorded lectures.

In the laboratory the students practiced their programming skills daily on the most modern large and small computers. They received realistic training by participating in on the job processing for business and research projects.

ACM Schedules Seminar Series On Data Retrieval, Management

NEW YORK — Seminars on "Information: Its Storage and Retrieval" and "Data Management" have been scheduled by the Professional Development Committee of the Association for Computing Machinery.

The seminars will be given Aug. 22-23 at the Cabana Hotel, Palo Alto, Calif.; Aug. 26 at the Frontier Hotel, Las Vegas, Nev.; and Sept. 12-13 at the Warwick Hotel, Philadelphia, Pa.

The seminars, prepared by Auerbach Corp., cover information storage and retrieval systems

on the first day and data management systems on the second. On Aug. 26, both will be given concurrently.

The fee, including study materials, luncheons, and refreshments, will be \$75 for ACM members, \$100 for nonmember employees of ACM corporate members, and \$125 for other nonmembers. The fees for the Las Vegas session will be \$40, \$55, and \$70, respectively. For details, contact: J.M. Adams, Jr., ACM, 211 East 43rd St., New York, N.Y. 10017.

Marshall Moves Into Larger Quarters

SAN MARINO, Calif. — Marshall Information Sciences, the software subsidiary of Marshall Industries, has moved to new and larger quarters at 6151 West Century Blvd., Los Angeles, near Los Angeles International Airport.

Varian Has New Headquarters

IRVINE, Calif. — Varian Data Machines has moved into a 100,000 square foot headquarters in the Irvine Industrial Park, next to the Orange County Airport. President Robert Herman said the expansion has enabled the company to double its production of 620/i and 520/i digital computers and to offer 30 day delivery on the standard 620/i computer.

Scientific Control Opens Three Regional Offices

DALLAS, Texas — Scientific Control Corp. is expanding its

Expansions

marketing effort with the establishment of company regional offices throughout the country, according to John Baird, SCC president. Regional directors are Fred Warther, Eastern Region; Gerald Hellrung, Western Region; and Norman Young, Central Region.

Standard Memories Moves Marketing, Sales Offices

SHERMAN OAKS, Calif. — Standard Memories, Inc. has moved its corporate marketing and national sales offices to new headquarters at 15130 Ventura Blvd., Sherman Oaks. The expansion is designed to provide closer liaison with the national sales offices and the company's representative organization. Engineer-

ing, research and development, and manufacturing will continue to be headquartered in expanded facilities at 2401 South Broadway, Santa Ana.

Planning Research Forms Subsidiary

LOS ANGELES, Calif. — Planning Research Corp. announced it has formed a new subsidiary, PRC Computer Center, Inc., to handle internal data processing requirements and to provide its business and government clients with computer services. The new center is located in Westgate Research Park, McLean, Va. and is equipped with an IBM 360/50 computer. Dr. Robert W. Krueger, president, announced that James D. Tupac will direct operations. In addition to standard computing services, the subsidiary will develop and maintain system software and standards for the corporation.

Software Designed for Small Users

WAYNE, N.J. — A new computer programming and consulting firm, Futuristic Applications Corp., is developing programs for smaller and less expensive computers now being used by many businesses, according to Richard Dunsheath, president.

"FAC is initially developing a programming system for small stockbrokerage firms, over-the-counter dealers and small mutual funds," Dunsheath said. "We know the small businessman must have access to computer techniques if he is to compete with the larger automated firms."

Services

"Now they will be able to utilize computers without participating in costly time sharing systems, and without having to expose confidential company data to nonemployees," Dunsheath said.

FAC will also develop software systems to enable small computers to serve as satellites to larger systems. The cost is now competitive with many existing send/receive terminals which are in use today for on-line applications, he

said. This will allow other useful computing functions to be performed when no communication with the large system is occurring, he said.

Software Company Opens in New York

NEW YORK — Data Transformation Corp., a new software house offering consulting and programming services, is putting initial emphasis on development of construction, banking, and transportation software systems. The firm currently has a half dozen programmers in the field,

DATA PROCESSING
BUSINESS AND ACCOUNTING METHODS
EQUIPMENT LEASING
FORECASTING
INVENTORY CONTROL PROCEDURES
SYSTEMS ANALYSTS

2425 WISCONSIN AVENUE
DOWNERS GROVE, ILLINOIS 60515
(312) 364-3000

anderson
information and management systems, inc.



COMPUTERWORLD

societies

Parker Cites Standards For EDP Professionalism

WASHINGTON, D.C. — Peer acceptance and recorded achievements over a long period of time are the proper ways of measuring professional qualifications in the computer field, Donn Parker, secretary of the ACM, stated at the

recent DPMA conference. Noticeably he omitted mention of the Certificate in Data Processing examination, and his remarks suggested that this would not be a factor in either category.

In other parts of his talk, Parker brought out the recognition of the "technician" level, in which, he said, interest had developed only recently.

"Large numbers of high school and trade school trained people are required," he said, "to fill the increasing computing needs of business, government, and industry. Programmer-technicians are needed to relieve the highly paid programmer and information analysts of routine coding and operational chores."

Atchison Elected Chapter Chairman

SAN FRANCISCO, Calif. — Charles M. Atchison of Palo Alto has been elected chairman of the San Francisco Bay Area chapter of the Association for Computing Machinery.

Atchison, a senior systems analyst with Bechtel Corp., previously served as chapter vice chairman and secretary.

calendar

Aug. 5-10, Edinburgh, Scotland — IFIP Congress 1968. Contact AFIPS, 345 E. 17th St., New York, N.Y. 10017.

Aug. 20-23, Los Angeles, Calif. — Western Electric Show & Convention (WESCON). Contact WESCON, 3600 Wilshire Blvd., Los Angeles, Calif. 90005.

Aug. 27-29, Las Vegas, Nev. — ACM National Conference & Exposition. Contact Richard B. Blue, Sr., TRW Systems Group, Bldg. R3, Room 1144, 1 Space Park, Redondo Beach, Calif. 90278.

AMA Conference to Include Five Sessions on Computers

NEW YORK — The American Management Association's Fourth Annual Conference on Education and Training, to be held here Aug. 12-15, will include five sessions dealing with computers and four sessions dealing with computer related subjects.

These sessions are:

"Management and the Computer" (Aug. 12, 3:30 p.m.) A report on the impact, influence, utilization, and benefits of the computer and the systems concept on management. Participants will be: Dr. H.O. Holt, Bell Telephone Laboratories; James T. Scott, director of corporate systems, Bendix Corp.; Phil H. Toll, assistant controller, information systems, Mobil Chemical Co.; and Cass Zera, eastern region director, Control Data Corp.

"Using the Computer in Educational Administration" (Aug. 12, 3:30 p.m.) Topics will include: computers in educational management, program planning and budgeting, and the use of the computer in guidance and counseling. Participants will be: Dr. Charles E. Brewin, assistant superintendent, Bucks County (Pa.) Public Schools; Dr. Carl E. Helm, professor of education, City University of New York; Warren J. Koch, Jr., executive vice president, Visual Statistics Inc.; and Leo L. Kornfeld, partner, Cresap, McCormick & Paget.

"Computer Assisted Instruction" (Aug. 14, 9 a.m.) The session will be an in-depth analysis and evaluation of the uses of the computer as an aid to instruction, including a report from teachers actually involved in using computers in their classes. Participants will be: Dr. Victor C. Benderson, director, CAI Laboratory, University of Texas; Ralph E. Grubb, research psychologist, IBM; and Dr. H.A. Wilson, vice president, Comptuer Curriculum Corp.

"Information Retrieval for Education and Training" (Aug. 14, 4 p.m.) Panel members will report on methods and facilities for storing and retrieving

educational data, with a look at the prospects for centralized data banks and library systems for providing instant access to research results in education and training. The design and use of systems for student access will also be discussed. Participants will be: Dr. Lee G. Burchinal, director, Division of Information Technology, U.S. Office of Education; Robert E. Smythe, director, educational services, Sanders Associates; and Dr. Ralph Van Dusseldorp, associate superintendent for information systems, Iowa State Department of Public Instruction.

"The Computer in Training" (Aug. 15, 10:45 a.m.) A discussion and evaluation of the use of computer assisted instruction in training and development with emphasis on the impact of the computer on both the trainer and the trainee and on evaluating the results of using CAI in training programs. Participants will be: William G. Abbott, personnel and organization staff, Ford Motor Co.; Dr. Joel Ross, chairman, Department of Management and Marketing, College of Business and Public Administration, Florida Atlantic University; and Thomas L. Thomas, research engineer, Computer Services Department, Engineering Staff, Ford Motor Co.

Computer related sessions will be: "Theory and Practice of Simulation and Games in Education and Training" (Aug. 14, all day), "Applications of the Systems Approach in Education" (Aug. 14, 2 p.m.), and "A new look at Programmed Instruction" (Aug. 15, 10:45 a.m.).

The conference and related exposition will be held at the New York Hilton Hotel. The fee is \$120 for members, \$135 for nonmembers, and \$90 for educators. Persons may also register only for one, two, or three days for lesser fees.

For conference details, write: American Management Association, 135 West 50th St., New York, N.Y. 10020.



BUY



SELL



SWAP



2 DDP 516 Computers, 12K, 8 priority interrupt lines, 1 ASR TTY, 72 LS logic, 2 HS logic, program sampler, automatic restart, 20 lines 103-A, sequential addressing.

Reply Box No. 3002
COMPUTERWORLD

1 DPC 5045 Disc File Subsystem with 113 million characters storage, 703 million bits, 1200kc transfer rate, 12 additional discs, dual access controller, 513 disc interface 8K 4DMA, .96 microsecond full cycle, 16 bits/word.

Reply Box No. 3001
COMPUTERWORLD

For Sale
Small but profitable San Francisco bay area IBM unit record equipment rental business. \$40M+ yearly gross volume. Box 2901
Computerworld

How To Answer Box Number Ads:
All replies to CW box numbers that appear without an address should be sent to Computerworld, 60 Austin St., Newton, Mass. 02160.

TOP PRICES PAID FOR IBM KEY PUNCH EQUIPMENT
SELL NOW—DELIVER LATER
DATRONIC RENTAL CORP.
5210 Wesley Terrace, Chicago, Ill. 60656
A/C 312 992-0760

For Sale
1 047 — Tape/conv under MMC
2 729 — Mdl 5 Tape Drives
1 1412 — Sorter Reader under MMC

1004 — Univac Mdl A 80 Col 400 CPM, 400 LPM 30 Prog Stps
1620 — System w/1622 under MMC

Reply Box 3101
COMPUTERWORLD

WHY ONLY WINDOW SHOP?
Now, you can go inside and order whatever you need. We make it easy. We buy it for you and lease it to you at equitable rates. As low as \$500 and as long as 5 years. Inquire.

Equity Leasing Corporation
40 W. 15th St., N.Y., N.Y. 10011
212-243-1316

Computer Sales Inc.
Outstanding Values in EDP Equipment
We buy, sell and lease all types of EDP and EAM equipment.

Computer Sales Inc.
128 Woodland Avenue
Yonkers, N.Y. 10703
(941) 423-0688

IBM 2316 DISK PACKS (NEW)
IMMEDIATE DELIVERY
PHONE 503-665-8125
AUTOMATED SERVICES, INC.
125 N.W. MILLER STREET
GRESHAM, OREGON 97030

A.G.O. Key punching Service, Inc.,
for large or small volume. Recurring and 1 time assignments.
Reasonable Rates
Service accurate and dependable
Open 7 days 24 hrs. per day
Call G. Ormond
(212) 658-4328

TLW Buys & Sells Unit Record Equipment!
Our Machines are Reconditioned
and under IBM M/A 6-8 weeks delivery.
Ask about our "recon-center consignment"
Call or write:
TLW Corp.
P.O. Box 29763
Atlanta, Ga. 30329
(404) 633-2579

SELL computer time. Data Processing Services. Used equipment. Key punching services. Programming Services. Leasing services. Consulting services . . . AND YOUR COMPUTER PROGRAMS . . . by advertising in the

COMPUTERWORLD BUY/SELL/SWAP

Send us your ad copy, including NAME, ADDRESS, & ZIP CODE NUMBER
\$.50 per word; minimum cost per classified ad is \$14 (28 words)

PAYMENT SHOULD ACCOMPANY ORDER; \$1 EXTRA FOR BILLING

() Insert next Issue(s) () Assign Box Number for \$1 extra

Name: _____ Title: _____

Send bill to: _____

Address: _____

City: _____ State: _____ Zip: _____

RETURN TO: COMPUTERWORLD, 60 Austin St., Newton, Mass. 02160

FOR SALE
\$6,000 (1/3 of original \$18,000 cost)
for a brand new **BURROUGHS**
Electronic Computing Actg. Machine
Mod E1128 PAE with an A522 PAE Punch
AVAILABLE IMMEDIATELY

Contact David B. Cohen, Tel. 516-621-4800

SOFTWARE FOR SALE

GENERAL LEDGER COBOL

Designed for service-oriented organizations but equally valuable for in-house use. Currently in Banking and Service Corporations.

Ease of audit — custom formats — scheduled checkpoints

IBM/360 32k H/200 16k
Systems Associates, Inc.
356 Penn Street
Reading, Pennsylvania 19602

RPGAID-II

THE \$100 MULTIPURPOSE
TIMESAVER FOR 360/20 RPG
PROGRAMMERS

Pre-Lister gives formatted listing and diagnostics two to three times faster than compiler. Does multiple programs in a single run.

Indicator Cross Reference List simplifies maintenance and de-bugging.

Off Site Backup lists source decks at high speed for library use.

Write Today
for Fact Sheet
and Sample Output

Computer Results Corp.
P.O. Box 475
W. Springfield, Mass. 01089

Generalized Plot Program

Reduces programming for plotting by at least a factor of ten. Programs developed for use of CalComp plotters. The program is written in Fortran to operate on several medium to large scale computers. Can be easily modified to run on most computers with Fortran.

Capabilities include: up to six lines/chart; individual scale and labels for each line; logarithmic or linear plot; chart sequencing and titling; user selection of plot symbols; scatter plots or connected line plots; comprehensive diagnostics; no destruction of data.

For additional information, write or call:

Helidyne Corporation
Division of KMS Industries, Inc.
1401 Wilson Boulevard
Arlington, Virginia 2209
Phone: (703) 528-5003

AUTOFLOW

An automatic flowcharting system that produces 2 dimensional flowcharts directly from Cobol, Fortran and assembly language input.

Autoflow also produces listings of syntax errors, logic errors, data-game cross reference, label (or paragraph or statement number) cross reference index, and alphanumeric label index. Available for: IBM 360 systems, H-200 systems, Spectra 70 systems, IBM 1400 and 7090 systems. Write for literature and free demonstration.

Price: Upon request
Contact: Applied Data Research



Route 206 Center
Princeton, N.J. 08540

Sort Merge Routine for IBM 1130

Variable field alpha-meric sorting with limits only for what your disk will hold. Extremely fast and callable by any program. True General Purpose.

Price: \$400.00
Contact: RJH
9861 Cockatoo Lane
Garden Grove, Calif. 92641

360 DOS Date Routine

Program gives user Alpha, Short, and Julian dates. Uses either system date or user specified date. Ideal for all DOS languages (COBOL, RPG, PL/I, ALC and FORTRAN).

Price: \$150.00
Contact: Perry L. Fleeman
P.O. Box 421
Lubbock Texas 79408
(806) 765-7761

360 DOS FORTRAN USERS

Compat-F Will Allow You
To Analyze More Data, Faster

By using its FORTRAN-type commands, you can read any tape (not just those written in FORTRAN) and you can overlap tape I/O with processing.

For a free brochure describing in more detail all the capabilities of this magnetic tape I/O System contact:

Caywood-Schiller, Associates
Dept. RS
401 North Michigan Avenue
Chicago, Illinois 60611
Telephone: 312-527-4450

CPA Computer Processing for Accountants

Parameterized, report-generator type system for General Ledger write-up and statement preparation. High profit application for banks and service bureaus.

COBOL System

Currently running on H200 & 360/30. Will convert for any system.

\$7500 purchase (lease & franchise available)

Contact Mr. Floyd Stem
Computer Resources Corporation
Wilton, Conn.

360 Payroll System — 100% COBOL —

Series of 23 programs which process hourly and salaried payrolls in a multi-company environment. Liberal deduction capabilities. Full labor distribution reporting. Complete file maintenance facilities. Excellent documentation. Runs on IBM 360 with 32K and two 2311 Disk Drives. This system is now being used and has proven highly successful. Price: \$5,000

Contact: Business Information Systems, Inc.
Times-Chronicle Building
Jenkintown, Penna. 19046

MARKET DATA SYSTEM

A new system that allows you to —

- Record complete profile information on customers
- Make corrections or additions at low cost
- Retrieve information easily for selective mailings or market studies
- Convert lists or cards to tape storage with minimum effort
- Print labels using one of five methods

Designed for S/360, DOS, 32K and up. Send for full details.

Price: Upon Request
Contact: L.H. Baker
Pioneer Data Systems
1206 Mulberry Street
Des Moines, Iowa 50308

COBOL CROSSREF

Single program produces a cross reference by page/line, or compiler sequence, of all file, data, and procedure names contained in a COBOL source deck. Designed for S/360 DOS 32K and up. Send for full details.

Price: \$120
Contact: Kenneth G. Taylor
P.O. Box 831
Denville, N.J. 07834

OK....

You wrote a
program
package.

It took....

Time....
Money....
Effort....

Now What?
Why not sell
that package
to others.

In Software
For Sale

13 weeks....
26 weeks....
52 weeks....

only \$10.00
for 1 inch

\$20.00 for 2
inches

\$25.00 for 3
inches

\$30.00 for 4
inches

Send
your package
discription to



Advertising Dept.
60 Austin St.
Newton, Mass. 02160

We'll send you
the customers

GIS Compatibility Open to Question

WHITE PLAINS, N.Y. — IBM has supplied more information about the relationship between their new Generalized Information System (Basic) which is to be delivered in 1969, and other languages which are available on the System 360.

The information shows that unless a user is prepared to set up special, dedicated files for use with GIS, and then use these files only for handling GIS operations, he faces some considerable problems. Many users are interested in GIS type programs. But they want to integrate them into their normal files and processing operations because they are unwilling to pay the price in time and money of having to duplicate some of these facilities.

Interface Problem

One of the problems involved in a user actually using GIS is that while, as IBM points out, a GIS program can be interfaced with programs in other languages, the responsibility of whether or not such interfacing is possible belongs with the user, rather than with GIS.

The key problem is in the internal structure of the file. IBM's position is that this represents "a rather trivial interdependence" in most standard data processing applications, but the company

notes that there are possible pitfalls. A GIS file may, for instance, have nested sets of repeated data, while other OS languages can't handle such levels of detail.

The Slack Bytes

Equally, in the actual software — even where the facilities are apparently available — if the other compilers (Cobol, Fortran, PL/I, etc.), are used in creating the file insert slack bytes, or slack bytes are expected (spacing inserted around a field to make it match the word structure of the System 360 hardware), the user is totally responsible for describing the presence of, and the requirements for, these slack bytes to GIS. (IBM told *COMPUTERWORLD* that a single example of this would not be illuminating because it would depend on the file organization required.)

Currently it is not clear whether this is always possible — for the treatment of slack bytes differs between different compilers and has not in the past been a user's concern. It appears likely that the GIS files can be carefully set up so that they match any one special compiler's operations. But if a user wants to match them to two different compilers, the problems involved may be insuperable, effectively leaving the GIS program incompatible with the other programs.

Time Sharing Software Now Handles 40 Users

LOS ANGELES, Calif. — The SDS 940 time sharing system can now handle almost twice as many on-line users — 40 — and can assign priority positions to another 44 users waiting in line.

In two software modifications within the past year, Scientific Data Systems has increased the on-line capacity of the system from 24 to 32 and then to 40 users, while improving response time by about 25%, an SDS spokesman said.

SDS also has introduced a hardware implemented floating point option for the 940 which improves response time about 25% for users requiring large amounts of computation, he said.

"Dial and Wait"

Previously a user received a busy signal if he called in when the system was fully loaded. With the new software, the system can place up to 44 callers in a waiting queue until the system is ready to serve them, the spokesman said. The feature is called "Dial In and Wait."

In all, more than 50 improvements have been made in the software package being distributed to SDS 940 customers this month, he said. Another of them is an automatic system restart without operator intervention when failures occur, he said.

Association Develops Programs To Cut Structural Design Costs

CHICAGO, Ill. — The Portland Cement Association is preparing a series of computer programs to facilitate the design and reduce design costs for plain and reinforced concrete structures.

The following design aids, intended for use by consulting engineers, universities, and federal and municipal design agencies, are available now: airport pavement design, biaxial bending in columns, flat plate analysis and design, and simple-span precast-prestressed highway and railway bridges.

Programs are being developed for staggered wall beams for multi-story buildings, edge loading for concrete pavements, lateral load

analysis of frames with shear walls, and a general multi-story frame program for vertical and lateral loads.

The programs were developed for use by consultants with computers in their offices and by service bureaus. Specially developed input sheets for specific PCA programs will be distributed to consulting engineers.

The input sheets, which are designed for use by engineering personnel with no prior knowledge of computer applications, will include the geometry of the structural elements, the design method, and the material specifications. Computer personnel can use the sheets to punch the cards



COMPUTERWORLD

financial

New Registrations

BOOTHE COMPUTER CORP., 1 Maritime Plaza, San Francisco, Calif., an electronic and data processing equipment company, filed a statement to register 144,000 common and \$18 million of convertible subordinate debentures due in 1988, to be offered in units of \$1000 of debentures and eight shares. Proceeds from the offering (with the price to be set by amendment, maximum \$58 a share) are to be used for equipment and other corporate purposes. The underwriter is Eastman Dillon, Union Securities & Co., 1 Chase Manhattan Plaza, New York, N.Y.

CENTRAL DATA SYSTEMS, INC., 2800 Superior Ave., Cleveland, Ohio, a company providing computing and software services, filed a statement to register 100,000 common. Proceeds from the offering (with the price to be set by amendment, maximum \$7 a share) are to be used for expansion, equipment, and working capital. The underwriter is Ball, Burge & Kraus, 1414 Union Commerce Bldg., Cleveland, Ohio.

DATA LEASE FINANCIAL CORP., 401 North Lake Blvd., North Palm Beach, Fla., a company rendering bank management services filed a statement to register 80,500 common. Proceeds from the offering (with the price to be set by amendment, maximum \$12 a share) are to be used for debt repayment, expansion, and working capital. The underwriter is Smith, Jackson & Co., 17 Battery Place, New York, N.Y.

DIVERSIFIED DATA SERVICES & SCIENCES, INC., 660 Madison Ave., New York, N.Y., a company leasing computer equipment and providing computer services, filed a statement to register 500,000 common. Proceeds from the offering (with the price \$2 a share) are to be used for equipment. The underwriter is Weiss, Voisin, Cannon, Inc., 111 Broadway, New York, N.Y.

EFFICIENT LEASING CORP., 2460 Lemoine Ave., Fort Lee, N.J., a lessor of business machines, data processing, and related equipment, filed a statement to register \$5 million of convertible subordinate debentures due 1988. Proceeds from the offering (with the price 100%) are to be used for equipment and working capital. The underwriter is Orvis Brothers & Co., 30 Broad St., New York, N.Y., and Coggeshall & Hicks, 50 Broadway, New York, N.Y.

UNIDAT CORP., 95 Broad St., New York, N.Y., a company providing computer services, has filed to register 80,000 common. Proceeds from the offering (with the price \$6 a share) are to be used for debt repayment, expansion, and working capital. The underwriter is Alessandrini & Co., Inc., 11 Broadway, New York, N.Y.

URS SYSTEMS CORP., 1700 S. El Camino Real, San Mateo, Calif., a service organization engaged in the computer information field, filed a statement to register 200,000 common, 165,000 of which are to be offered by selling stockholders. Proceeds from the company offered shares (with the price to be set by amendment, maximum \$20 a share) are to be used for debt repayment and working capital. The underwriter is White, Weld & Co., 20 Broad St., New York, N.Y.

ACQUISITIONS

MINNEAPOLIS, Minn. — Control Data Corp. will acquire American Business Systems, Inc., a manufacturer of continuous forms and punch cards, through a tax-free exchange of stock valued at about \$5.2 million.

The preliminary agreement is subject to the completion of a definite agreement, plus the approval of directors of both companies and the stockholders of American Business Systems.

Officials of Consolidated Foods Corp. in Chicago, Ill., which owns 60% of American Business Systems' common stock, have indicated approval of the acquisition, CDC said.

Under the terms of the tentative agreement, CDC will exchange common stock equal in value to the number of American Business Systems shares outstanding as of July 15, multiplied by 12. On that date, the firm had 429,453 shares outstanding. The value of the CDC stock is to be based on the average of the closing prices of CDC on the New York Stock Exchange for the five trading days preceding the closing of the transaction.

University Computing Buys American Data Processing

DALLAS, Texas — University Computing Co., an international computer services organization headquartered here, has purchased the American Data Processing Corp., Raleigh, N.C., a computer services and program development organization. The price

was not disclosed.

ADP will continue to operate under its own identity and management, the announcement said. UCC said that immediate plans include ADP expansion into a new building in Raleigh and for UCC to establish on the ADP premises an Academy of Computer Technology similar to those UCC operates nationally in programming, computer operations, and the management sciences as an educational subsidiary.

New York Publisher Acquires Pandex, Inc.

NEW YORK — Crowell Collier and Macmillan, Inc., a producer and distributor of educational materials and services, has acquired Pandex, Inc., a New York headquartered information processing firm, for an undisclosed amount of cash.

Pandex, which specializes in the construction of computer information files and indexing services for special libraries and information centers, will become a subsidiary of CCM Information Sciences, Inc., a company organized last fall to publish specialized data in a variety of media.

Pandex will operate autonomously under its current leadership.

Pandex's principal product is a cross-disciplinary subject/author index of articles, books, reports, and patents in science, technology, and medicine.

Many Use Computer 'Wrong,' Lose Money, Report States

NEW YORK — In terms of technical achievement, the computer revolution in American business is outrunning expectations, but in terms of economic payoff on new applications, it is rapidly losing momentum, according to a report by McKinsey & Co., management consultants.

Because technicians, not managers, control the ways in which computers are being used, many large companies are losing profits that computers might bring them, the report concludes.

Unless companies go beyond "super-clerk" uses and apply computers to important management and operations problems, increasing computer outlays will not be justified, the study warns.

The study, directed by David B. Hertz, involved 36 major companies in 13 industries. Twenty-five of the companies had annual sales of \$500 million or more, and 15 had annual sales of \$1 billion or more.

Of the 36 companies, only Proctor & Gamble, IBM, and Ford permitted their names to be used, and Hertz said that these three were exploiting the computer "relatively successfully."

Achievement Gap Widens

The gap between technical capability and practical achievement is wider than it was in 1963, while the stakes have risen sharply, and until the computer is put to work where the leverage on profits is high, the penalty of lost opportunities and lost profits will continue to mount, the report states.

Of every \$100,000 of total computer expenditures — more than \$11 billion in 1967 — about \$35,000 goes for hardware, \$30,000 for computer operations staff payroll, \$15,000 for maintenance programming (keeping systems updated), and the remaining \$20,000 for development programming and other staff time devoted to new applications, the report says.

These development dollars, the only computer outlays subject to significant short-term management control, are typically a smaller fraction of the total than one company's annual bill for hardware rentals, the report states. Yet their leverage on future costs and benefits is enormous, the report states, adding that they hold the key to the company's long-range success or failure with its computer effort.

Unless management segregates these costs and understands the nature of the resources they buy, the direction of future computer developments will be in doubt, and the whole activity will be vulnerable to precipitous, perhaps emotional, review, the report says.

The key question is not, "How are we doing?" but, "Where are we heading, and why?"

"Businesses are spending more on added computer capacity without really thinking through how to use what they already have," Hertz said.

Back in the days when the computer's full potential was not foreseen, the overall feasibility of a proposed computer application was generally equated with its technical feasibility, and it made sense to let the computer professional decide how to use the

computer, the report says. But this same policy of delegation is still being followed even though technical feasibility is now only one aspect of overall feasibility.

Five Goals Outlined

According to the report, the chief executive who wants maximum results from his company's computer effort must do five things:

— Approve objectives, criteria, and priorities for the corporate computer effort, with special attention to the development program.

— Decide on the organizational arrangements to carry out these policies and achieve these objectives.

— Assign responsibility for results to the line and functional executives served by the computer system, and see to it that they exercise this responsibility.

— Insist that detailed and thorough computer systems plans are made an integral part of operating plans and budgets.

— Follow through to see that planned results are achieved.

There is nothing novel in any of these recommendations; they are standard operating practice for most chief executives in most of their traditional areas of responsibility, the report concludes.

Earnings Reports

BURROUGHS

DETROIT, Mich. — Burroughs Corp. has reported second quarter earnings of \$10 million (\$1.22 a share), up from \$7.9 million (\$0.97 a share) in the previous second quarter, and revenue for the period of \$158.8 million, up from \$137.6 million.

The company also has restated first quarter earnings as \$5.8 million (\$0.70 a share) to take into account the retroactive 10% federal income tax surcharge.

First half earnings were \$15.7 million (\$1.92 a share), up from \$13.1 million (\$1.60 a share) for 1967's first half, with first half sales of \$292.2 million, up from \$248.9 million, the company said.

Burroughs President Ray W. MacDonald said that new orders for commercial electronic data processing systems were nearly 90% ahead of their volume in the first half of 1967.

HONEYWELL

MINNEAPOLIS, Minn. — Honeywell, Inc. has announced second quarter earnings of \$10.6 million (\$0.71 a share), up from \$9.7 million (\$0.65 a share) in 1967's second quarter, with sales and revenues up 18% to \$308.1 million.

First half earnings were up 24% to \$19.6 million (\$1.32 a share) and first half revenue rose 22% to \$594.5 million, the company said.

"Our computer business continues to be highly successful," Honeywell Chairman James H. Binger said. "Incoming orders are strong, influenced by a number of newly announced products that have been well received."

"We expect continued rapid growth and rising profitability in this area of the business," he said.

SPERRY RAND

NEW YORK — Sperry Rand Corp. has reported record earnings of \$16 million (\$0.47 a share) on record sales of \$361.7 million for its first fiscal quarter ended June 10. The earnings figure reflects provision for the 10% federal income tax surcharge.

The previous fiscal year's first quarter figures were earnings of \$9.5 million (\$0.30 a share) on sales of \$360 million, the company said. Earnings were adversely affected by a \$6.5 million nonrecurring charge, the company said.

According to Sperry Rand President J. Frank Forster, first quarter results were "on target" and the firm expects continued improvement during the rest of the fiscal year.

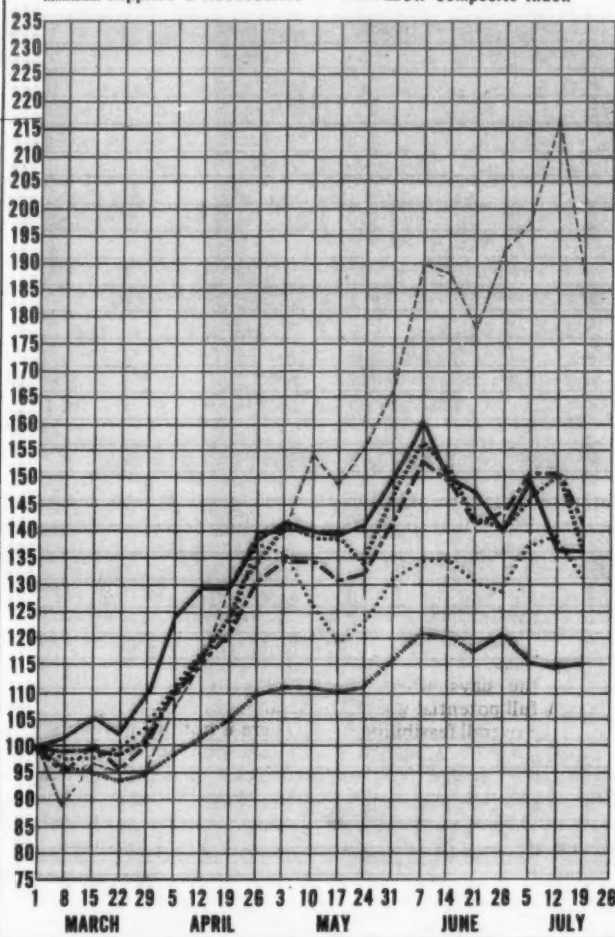
BRANDON

NEW YORK — Brandon Applied Systems, Inc. has announced earnings for its first fiscal quarter ended May 31 of \$20,934 (\$0.03 a share, adjusted to reflect a two-for-one stock split June 20), up 110% over the same period last year.

Revenues for the period were \$342,934, up 80% from last year's first quarter figure, the company said.

Computer Stocks Trading Index

Computer Systems Software & EDP Services
 Peripherals & Subsystems Leasing Companies
 Supplies & Accessories CW Composite Index



CW Stock Index Off in Market Sag

(Continued from Page 1)

The summer rally sagged — first in the glamour issues, which are particularly vulnerable to profit-taking because of their high price earnings ratios, and then spread to the blue chips — as the market was affected by some adverse economic forecasts.

Among the stocks listed in *Computerworld's* stock table, every stock in the Computer Systems sector and the Peripherals & Subsystems sector was off. In the remaining sectors, losers outnumbered gainers by slightly better than 2-to-1. Overall, the ratio was nine losers for every two gainers.

Of *Computerworld's* five sectors, only the Supplies & Accessories sector was up, and that by less than a point, to 115. Off by a significant amount was the Software & EDP Services sector, down 29, or 13.4%, to 188. Also off by large amounts were the Peripherals & Subsystems sector, down 12.6, or 8.5%, to 137; and the Leasing sector, down 7.5, or 5.4%, to 132.

In spite of the market drop, no *Computerworld* listed stocks reached new lows, but three did reach new highs. In the Software & EDP Services sector, Computer Environments closed up 14.58% at 13-3/4, while in the Leasing Sector, Computer Exchange closed up 22.73% at 10-1/8 and DPA was up 2.58% to 19-7/8.

Among the week's more active stocks was Sperry Rand, off 6.7%

to 45-1/4 on 724,000 shares traded.

The slackening of the stock markets seems to stem from a variety of reasons. High among them were the predictions of a "healthy slowdown" and an "orderly cooling off" of the nation's economy, the 10% federal income tax surcharge, and the announcement that defense spending was to be trimmed \$1.7 billion this year.

Computerworld Computer Stock Index Explained

For those who have begun reading *Computerworld* since we began compiling our Computer Stock Index, a few words of explanation.

Primarily, the index shows computer stock activity against a fixed base.

The index was started March 1 of this year. The closing prices of selected computer stocks on that date were used to establish a relative base at 100.

Fifty stocks are used in the index, 10 in each sector.

In theory, if you had invested \$100 in each of the stocks used in the index on March 1, your investment would have grown from \$5000 to \$7570, less brokerage commissions and applicable taxes.

COMPUTER STOCKS: TRADING SUMMARY

EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	COMPUTER SYSTEMS	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
NYSE	163 3/8	220-157	201 1/4	Burroughs	-13 5/8	-6.34	+23.18
NYSE	67 3/4	110-89	88 3/8	Collins Radio	-1/2	-0.84	-12.37
NYSE	101 1/2	174-85	163	Control Data	-11	-6.71	+56.74
NYSE	102	100-85	139 3/4	Digital Equipment	-31 1/4	-2.27	+37.00
NYSE	87 1/4	100-84	85 5/8	General Electric	-3/8	-0.44	-2.86
NYSE	80	91-88	78 1/8	Hewlett-Packard	-1/8	-0.19	+28.96
NYSE	83 1/8	144-80	115	Honeywell	-12 7/8	-16.07	+23.46
NYSE	288 1/2	375-280	345	IBM	-9 3/4	-2.76	+19.88
NYSE	160 7/8	153-90	138 1/2	National Cash Register	-8 1/2	-8.99	+23.71
NYSE	89 7/8	98-40	47	RCA	-3/4	-1.87	+8.27
NYSE	38 1/8	53-36	37 3/8	Raytheon	-4 1/8	-8.94	-4.47
OTC	22 1/2	66-20	50	Scientific Controls Corp.	-5	-8.02	+122.22
NYSE	78 3/4	114-72	96 1/4	Scientific Data	-1 3/8	-1.42	+20.65
NYSE	45	63-42	45 1/4	Sperry Rand	-3 1/4	-6.70	+0.58
NYSE	22 1/2	39-20	34	Systems Engineering Lab.	-2 1/2	-6.85	+51.11

EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	PERIPHERALS & SUBSYSTEMS	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
NYSE	88 3/8	91-82	77 3/8	Addressograph-Multigraph	-8 3/8	-7.87	+22.88
OTC	21	86-46	62 1/2	Alphanumeric	-4 1/2	-6.72	+197.61
NYSE	29	32-28	28 5/8	Amper	-1 7/8	-5.88	+2.18
OTC	17 1/4	27-15	18 1/2	Bolt, Beranek & Newman, Inc.	-1 1/4	-6.83	+7.34
NYSE	13 1/2	29-12	17 3/4	Burke-Ramo	-1 3/8	-7.19	+14.46
NYSE	32 1/8	50-27	43 1/8	Calcomp	-2 3/8	-5.22	+34.24
OTC	24 1/2	48-20	43	Cognitronics	-7	-14.00	+20.83
OTC	12	17-10	14 1/2	Computer Equipment	-2	-12.12	+13.82
OTC	15 1/4	23-13	17 3/8	Data Products	-1 1/4	-6.71	+13.82
OTC	19 1/4	27-18	21 1/2	Digital	-3 1/4	-13.13	+11.89
OTC	39	57-32	40 1/2	Electronic Memories	-4 1/4	-8.86	+3.88
OTC	19	26-9	15	Fabrit-Tek	-2	-11.76	+98.68
OTC	34	71-28	64 1/2	Garber Scientific	-1 1/2	-2.27	+88.70
OTC	12 1/2	28-15	25	Information Displays	-1	-3.85	+100.00
NYSE	18 7/8	52-14	43 3/4	Milco Electronics	-4 1/8	-8.82	+108.28
NYSE	115 1/8	217-108	179 1/2	Mohawk Data Sciences	-24 3/4	-12.12	+55.91
OTC	74	138-71	108	Optical Scanning Corp.	-1	-0.91	+47.30
OTC	72	130-64	125	Photon	-5	-3.85	+73.61
NYSE	25 5/8	38-20	30	Potter Instrument	-2 3/8	-7.34	+17.07
OTC	40 1/4	98-38	88	Recognition Equipment Corp.	-11	-11.11	+117.28
NYSE	18	28-14	23 3/8	Ricon Electronics	-1 1/4	-5.87	+46.08
NYSE	48 1/8	68-42	48 1/8	Sanders	-4 1/8	-7.89	+4.33
OTC	47	158-83	90	Scan-Data	-	-	+91.48
OTC	40 1/2	51-35	49	Tally Corp.	-	-	+20.88
NYSE	242 1/4	321-229	276	Xerox	-20	-6.76	+13.93

EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	SUPPLIES & ACCESSORIES	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
OTC	48 1/2	64-41	48	Aame Visible	-9	-18.75	-1.03
NYSE	20 1/2	32-18	22 5/8	Adams-Mills	-1 1/4	-5.24	+1.04
OTC	13 5/8	19-13	21 1/2	Baltimore Business Forms	+1 3/4	+8.86	+67.79
NYSE	27	44-21	33 1/8	Berry Wright	-1 7/8	-5.36	+22.89
OTC	31 1/4	40-26	38	Data Documents	-	-	+21.61
OTC	27 1/4	38-28	34 1/2	Exels Business Forms	+1	+2.96	+28.51
NYSE	84 1/8	118-81	106 1/2	3M Company	-2 1/2	-2.26	+28.39
NYSE	88	83-49	84 7/8	Memorex	-2 3/4	-4.07	+11.86
OTC	27 1/4	32-25	29 5/8	Moore Business Forms	-7/8	-2.67	+8.72
NYSE	87 1/4	78-47	75 1/2	Nashua Corp.	-5/8	-0.82	+21.88
OTC	31 1/4	68-30	52 1/2	Reynolds & Reynolds	-3 1/2	-6.25	+68.05
OTC	34 1/2	35-24	27 1/2	Standard Register	+1 1/2	+7.76	-7.97
NYSE	37 3/4	44-30	31 3/4	Uarco	-	-	-15.99
NYSE	14 1/4	22-13	18 1/2	Wabash Magnetics	+1 1/2	+8.82	+29.82
OTC	25 3/4	36-24	30 1/2	Wallace Business Forms	+1 1/2	+5.17	+18.45

EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	SOFTWARE & EDP SERVICES	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
OTC	7 1/2	25-7	22 1/2	Advanced Computer Techniques	-2 1/2	-16.00	+30.00
OTC	17	33-14	33	Applied Data Research	-	-	+94.18
OTC	15 1/2	24-16	16 1/2	Arco	+1/2	+2.13	+6.45
NYSE	47	60-42	54	Automatic Data Processing	+5 1/2	+8.34	+11.40
OTC	4	18-4	15 1/2	Automation Sciences	-4	-28.57	+287.80
OTC	4 1/2	20-3	14	Brandon Applied Systems	-6	-30.00	+211.11
NYSE	22 7/8	43-21	23 5/8	Computer Applications	-1 7/8	-7.35	+3.28
OTC	5	13-7	13 3/4	Computer Environments	+1 3/4	+14.58	+175.00
OTC	30	60-24	54	Computer Network	-5	-8.47	+80.00
NYSE	40	64-36	57 1/2	Computer Sciences	-3 3/8	-5.54	+43.75
OTC	39	62-35	35 1/2	Computer Usage	-2	-5.23	-9.89
NYSE	36 1/2	81-30	53 5/8	Computing & Software	-1 7/8	-3.36	+46.92
OTC	12 1/2	21-10	21 3/4	Comshare	-	-	-
OTC	12 1/2	20-9	15 1/2	Datamation Services	-3/4	-5.23	+74.00
NYSE	38 3/8	52-26	40 7/8	Digital	+3/4	+5.06	+36.00
OTC	35	68-32	60 1/2	Electronic Computer Prog. Inst.	+2 3/8	+6.17	+9.91
OTC	11 1/2	28-17	19	Informatics	-	-	+72.28
NYSE	31	57-9	43	Matrix Corp.	+1	+3.88	-14.29
OTC	9	45-28	40 1/4	National Computer Analysis	-14	-24.56	+273.91
OTC	20 1/2	10-8	11 1/4	Planning Research	-2 3/4	-6.40	+29.84
OTC	10 1/2	22-12	16	Software Systems	-1 1/2	-11.76	+25.00
OTC	63	158-57	138	TSS Computing Center, Inc.	+3	+23.07	-21.85
OTC	63	158-57	138	University Computing	-14	-9.21	+119.05

EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	LEASING COMPANIES	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
OTC	18	57-18	27 1/2	Burke Computer	-1	-1.78	+211.11
OTC	19 1/4	28-18	27 1/2	Chandler Leasing	-	-	+42.86
OTC	4 1/4	10-4	10 1/8	Computer Exchange	+1 7/8	+22.73	+138.34
NYSE	25 1/8	36-21	26 1/4	Computer Leasing	-1/4	-0.87	+12.43
OTC	12 1/4	19-11	14	Cyber-Tronics	-1 1/2	-8.87	+14.29
NYSE	156 5/8	184-94	128	Data Proc. Financial & General	+4 1/2	+3.84	+20.04
OTC	12 1/2	17-9	10 1/8	Datronics Rental	-	-	-19.00
OTC	20	59-18	26	Deardon Computer	-4	-6.77	+179.00
OTC	13 1/4	19-12	19 7/8	DPA, Inc.	+1/2	+2.88	+60.00
NYSE	28 3/4	43-27	36 1/4	Grayhound Computer	-2 1/2	-6.82	+28.33
NYSE	28 1/8	60-30	62 1/2	Gratco Equipment Leasing	-3	-5.40	+86.67
NYSE	48	94-41	60 1/2	Lease	-18 1/8	-14.05	+88.75
OTC	5	14-5	11 1/2	Lease Computer Leasing	-1 3/4	-13.21	+132.00
NYSE	46 7/8	94-41	60 3/4	Lease-Townsend Computer Corp.	+5 3/4	+6.32	+65.45
OTC	10 1/2	18-7	9 1/2	LHC Data, Inc.	-1	-5.82	-5.82
OTC	10 7/8	16-10	12 1/8	Management Assistance	-1 1/4	-9.34	+11.49
NYSE	41 5/8	53-25	37 1/2	National Equip. Rental	-3 3/8	-9.26	-9.91
NYSE	38	64-35	50 1/8	Randolph Computer Corp.	-2 3/8	-4.52	+31.91
OTC	10 1/2	42-10	41	System Capital Corp.	+5	+13.89	+290.47
NYSE	10 7/8	18-10	18 1/4	U.S. Leasing	-1/4	-1.52	+48.43

*Companies included in *Computerworld's* stock trading index for each sector.

POSITION ANNOUNCEMENTS

EXCEPTIONAL OPPORTUNITY SYSTEMS PROGRAMMER

COBOL experience in business applications programming in disc/tape, third generation multiprogram environment. Real-time or teleprocessing experience valuable. Looking for person willing to turn a real challenge into an excellent career opportunity with progressive nationwide retail chain headquartered in Rochester, N.Y.. Please furnish resume and salary requirements.

Our employees know of this ad. Equal opportunity employer.

Please Write
Manpower Planning Manager
Neisner Brothers, Inc.
49 East Avenue
Rochester, New York 14604

University Computer Center Production Manager

Unusual opportunity for individual seeking advancement in data processing. Must be capable of assuming production responsibility for a growing operation serving the administrative, research and instructional areas. Current hardware includes an IBM 360 magnetic tape/disk/remote terminal system. Specific line responsibilities dependent upon individual qualifications. Bachelor's degree required, master's desirable. Northern Ohio location. Send your resume to Box 3004

An Equal Opportunity Employer

How To Answer Box Number Ads:

All replies to CW box numbers that appear without an address should be sent to Computerworld, 60 Austin St., Newton, Mass. 02160.

\$7 Million in Terminals Ordered

NEW YORK — Conrac Corp. will supply the Burroughs Corp. with \$7 million worth of data terminals, the electronic industry's largest production order for "private label" information display devices.

Under the terms of the contract, Conrac is to deliver on-line data display terminals over the next three years to Burroughs, which then plans to market the low cost

Conrac terminals, supplied with its own colors and house marks, to complement its existing line of display equipment.

The desktop terminals, consisting of a cathode ray tube display mounted over a keyboard and with a display capacity of 960 characters, will be produced in Covina, Calif., by the company's Conrac Division.

Missing Newsletter Case Solved

ST. JOSEPH, Mo. — With refreshing candor, the editor of the Honeywell Users Bulletin in this month's issue cleared up the mystery of the missing June issue. "Did you miss receiving a June Newsletter?" he wrote. "Don't

feel bad about it. Nobody received one. We had nothing worthwhile to print."

Editor Ed Glowaty then made a plea for more contributions of news from readers so that the bulletin could be printed.

Greyhound Computer Corp. Opens Service Bureau

CHICAGO, Ill. — Greyhound Computer Corp. has opened a computer center in San Francisco.

The center will utilize IBM

7094, 1401, 360/40, and 360/30 computers, plus a GE-420 time sharing system.

Gilbert J. Mitchell has been named manager of the center.

SUPERMAN. AGER



Staffs his installation
through
the career pages
of **COMPUTERWORLD**

POSITION ANNOUNCEMENTS ADVERTISING RATES

Per single column inch (1 15/16 in. wide)

44 column inches or more \$12.60
22-43 column inches \$13.30
1-21 column inches \$14.00

Copy can be accepted until Friday at 4 p.m. for insertion in following week's issue.

Send copy and instructions to:

Position Announcements Manager
COMPUTERWORLD
60 Austin Street
Newton, Massachusetts 02160

for more information
call Bob Ziegel
(617) 332-5606



Engineering, scientific, or mathematical degree with experience in the command and control, scientific, or industrial fields. Programming efforts will be in batch control, direct digital control, multi-level programming, supervisory control, and scientific programming.

Send your resume to Robert Ash or call collect (617) 543-8750, The Central Recruiting Office, The Foxboro Company, Department CW7, Neponset Avenue, Foxboro, Mass. 02035.

FOXBORO

Specialists in Process and Energy Control

Look into other career building opportunities with Foxboro
An Equal Opportunity Employer

TIME FOR SALE

NY Area

360/30 time
24 K 2 disks 1442 and 1443
1440 compatibility
will consider adding
components
and upgrading
Newark, New Jersey area
For particulars, call or write
to George Goldbeck
484 Central Avenue
Newark, New Jersey
(201) 622-1234

360/30 65K \$50/HR 6/TAPES - 3/DISKS

Located Midtown New York City
with excellent availability on 2nd
shift. Four tapes are 9 tr. 60KB and
two are 7 tr. 30 KB. 1401/1460
compatibility - DOS & COS.

TIME BROKERS, INC.
380 Lexington Avenue
N.Y., N.Y. 10016
(212) 867-5561
National Brokers
of Computer Time

Branch Offices:

Boston - Los Angeles
Philadelphia - Washington, D.C.

COMPUTER TIME IBM, ETC.

N.Y. City & Surrounding Area -
We are Brokers & Principals
Computer Reserves, Inc.
44 E. 29th St., New York, N.Y.
(212) 532-5381

Pacific Coast

360-30 Block Time Available Seattle Area

24k to 65k C.O.S. D.O.S.
Disk Tapes
1403 600 LPM 2540 P.R.F.

C.C. Fleischmann
Time Oil Co.
2737 W. Commodore Way
Seattle, Wash. 98199

List Your Computer Time in TIME FOR SALE

Rates: 1" only 10.00 per wk.,
2" only 20.00 per wk., 3"
only 25.00 per wk., 4" only
30.00 per wk. List your time
for 13, 26, 39, 52 weeks

Birthplace of EDP Gets Third Generation Model

PHILADELPHIA, Pa. - The University of Pennsylvania's Moore School of Electrical Engineering, the birthplace of the modern electronic digital computer, will install an RCA Spectra 70/46 time sharing system for a number of special research projects. Installation is planned for early winter.

"This will be the first time that Moore School personnel will have a large system of their own that can be used exclusively for computer research," school director Dr. John G. Brainerd said. "We are especially pleased that the computer can be used for research in time sharing - an increasingly important field."

In addition to the central processing unit, equipment is to include a magnetic card mass random access device capable of storing over 500 million characters of information, two high speed disk memory units, and terminal devices linking researchers with the computer.

Lack of electronic data processing facilities has created many

problems for computer researchers at the school, Brainerd noted.

"Computer research generally requires extensive and continuous use of the central processor," Brainerd said. "A researcher can work much more effectively when he can return to the machine right after he makes a run and make immediate use of his new data."

Researchers at the school are currently engaged in about 25 projects touching on major areas of computer applications. Among them are computerized studies of the human body; computer analysis of electric power systems that may help prevent blackouts; design of new information storage and retrieval systems in chemistry and other fields; the production of educational films that use animation generated by a computer; use of computers to help solve problems created by the explosive growth of technological information; military problems such as the simulation of helicopter formations; the replacement of certain aircraft instruments by computers; and new techniques for building and interconnecting computers.



Catt's Meow

Computers and related equipment apparently have "come of age." Gone (at least from this ad) are the simple, pristine photographs of products. Gone is the chaste young lady standing silently by the product, trying hard to look as though she really works in a computer room. This ad, for Ampex Catt (complete area tested tape), is definitely "for adults only." Whether or not it sells any tape, it's certainly going to liven up any computer publication in which it appears.

CW WELCOMES

Advertising Sales Office
New York Area

DON FAGAN

Grant Webb & Company
509 Madison Ave.

New York City, N.Y. 10022
(212) 688-7550

Interested in leasing a...

IBM S 360
UNIVAC 9000/1108/494
CDC 6000
RCA SPECTRA 70
HONEYWELL

Contact National, one of the nation's leading Computer Leasing Companies, for the most favorable long or short term program possible.

NATIONAL COMPUTER RENTAL LTD.

A subsidiary of National
Equipment Rental, Ltd.
26 Broadway,
New York, N.Y. 10004
(212) 425-7900

MORE THAN \$60 MILLION
OF COMPUTERS ON LEASE

Engineering Applications Group Formed

BETHESDA, Md. - Leasco Systems & Research Corp. is forming an engineering applications group to apply advanced computer technology to problems in the engineering and construction industries.

Paul D. Spindel, a professional engineer and former internal consultant to IBM's real estate and

construction division, will head the new group, which will be located at the firm's New York City office.

The group will provide systems and programming support to clients in civil, mathematical, chemical, and electronics engineering. It will also provide simulation, mathematical modeling, research,

and applications studies on a service bureau basis.

"This move will substantially broaden our ability to offer consulting services, custom systems design, and special problem solving to the engineering disciplines," said Frederick S. Hammer, Leasco Systems president.

Leasco Systems & Research Corp. is a subsidiary of Leasco Data Processing Equipment Corp., an independent computer services organization.



P.D. Spindel

Japanese Develop New Optical Reader

TOKYO - Nippon Electric Co., a computer manufacturer under license from Honeywell has developed a high speed optical character reader for use in computer installations.

Because market requirements differ between Japan and the United States, it would be "premature" to comment on American production or marketing

plans until a little later, according to Thomas Malcahy, director of Honeywell's EDP International in Wellesley Hills, Mass.

Nippon Electric said the scanner, which will sell in Japan for about \$83,400 and rent for about \$1945 a month, can process 1100 cards per minute and eliminates the need for key punchers.

EXCLUSIVE STUDY ON MICROFILM Publishing in Industry, Science Education

- IMPACT OF COMPUTERS & OTHER TECHNOLOGY
- MARKET SIZE
- MAJOR COMPANIES
- UNDERLYING PROBLEMS
- GROWTH PROJECTIONS

as compiled and analyzed in

THE KNOWLEDGE REPORT

Price \$5/copy

Bill Me ☐ Bill Company ☐ Check Enclosed ☐
Clip to your card or letterhead and

Return to: Knowledge Sciences Inc.

342 Madison Avenue, New York, N.Y. 10017

Do you really understand how
COMPUTERS
shape your future opportunities?
EDP Industry Report...
the semi-monthly newsletter...
gives you:

- the most accurate...
most quoted...
industry statistics available
 - in-depth studies...
with user surveys...
on important industry developments
 - the only comprehensive
Monthly Computer Census...
available from no other source
 - news roundups...
interpreted and assimilated
for the man who
thinks ahead
- Subscribe now...
get two issues free...
send \$75 for 13 months to

Box 8
60 Austin Street
Newtonville, Mass.
02160

Credit Bureau Details Privacy System

WASHINGTON, D.C. — A computerized credit bureau described its operations — and the restrictions it voluntarily had put on the data held — during a recent hearing of the Congressional subcommittee headed by Rep. Gallagher (D-N.J.).

H.C. Jordan, president of the Credit Data Corp., San Francisco, told committee members that he estimated that in five years time he would expect to have credit data on the entire population of the United States. He went on to explain the restrictions which were being placed on the use of the data. These files contain only identifying material, details of past credit performance with subscribers of Credit Data, some matters of public record (such as bankruptcies) and details of recent inquiries for each record from subscribers. This data can be made available to subscribers within two and a half minutes.

Attempts to Tap Files

The congressmen were clearly worried about the size of the file and the possibilities of misuse. Jordan admitted that there had been attempts made to tap into his files and that possible misuse was a constant worry of the operation. However, he argued that their precautions were sufficiently extensive so that it was unlikely that anyone would be able to obtain a great deal of information without being caught.

One of the precautions involved monitoring the subscribers themselves. The Credit Data operation is basically an exchange of information as to what loans have been granted, and what the actual performance on those loans was. The loans listed are only ones extended by subscribers, and

only people who are genuinely concerned with granting loans (as opposed to collection and employment agencies) are eligible to be subscribers.

Checks on subscribers include a watch on the volume of inquiries and the volume of loans made. "If some organization were to persuade one of our subscribers to act as a front for it . . . the computer would report an increase in the usual number of inquiries from the particular subscriber and the matter would be checked out by Credit Data," Jordan said.

Wrong Data Question

In response to questioning by Rep. Rosenthal of New York, Jordan said that if a subscriber — or his credit manager — wished to file wrong data, he could do so.

When the data is on file, it is sent to other subscribers on request. The table shows the granting of loans, and the repayment or delinquency involved. No account is made of the reason for a delinquency. This failure to provide for such data apparently worried some of the committee members, as they pressed questions about the television sets which did not work, airline credits which were not applied against accounts, etc.

Access to files also is strictly controlled, with no provision made for an individual to have access to his own records. Prof. Westin, who has often spoken out on the privacy problem, told the committee that it was technically feasible to have automatic reports generated for individuals whose records were being inserted or altered in various types of files.

RETURN TO CDC:		680 WILSHIRE PLACE - LOS ANGELES		APPROVED	<input type="checkbox"/>		
30-200	ROBERTSON	WILLIAM J	MARY	12-28-66	REJECTED		
	01212 WILSHIRE LA	DOUGLAS		386-32-1362	OTHER		
cdc CREDIT DATA CORPORATION							
30-200		ROBERTSON WILLIAM J MARY		12-28-66			
		01212 WILSHIRE LA DOUGLAS		386-32-1362			
CURRENT ADDRESS CHECKS			FILE EMPLOYMENT - DOUGLAS				
INDUSTRY	CODE	FILE DATE	TYPE	AMOUNT	MO S	RATING OR COMMENT	DATE RATED
BANK	15-310	02-62	AUTO	\$1500 TO \$2000	24	EARLY PAY	03-63
FINANCE	24-109	03-64	PERSONAL	UNDER \$250	06	OPEN ACCT	03-64
RETAIL	41-053	06-65	CHG ACCT	\$250 TO \$500	10	OPEN ACCT	06-65
OIL	30-600	08-65	CHG ACCT		01	INQUIRY	08-65
S & L	18-052	08-64	REAL EST	\$20000 TO \$40000	30	OPEN ACCT	09-64

A sample of a CDC credit report.

FCC Ruling Allows Faster Transmissions

MIAMI, Fla. — Among the beneficiaries of the Federal Communications Commission's June 26 ruling striking down the telephone companies' tariff bans against foreign attachments are expected to be users of Milgo Electronic Corp. modems. Milgo manufactures Modem 4400 data

sets which, using a narrow band technique, transmit computer data over voice-grade telephone lines at speeds up to 4800 bits per second. By comparison, the Bell System's existing Data-Phone equipment transmits at a maximum of 2400 bits per second.

AT&T Seeks Attachments Stay

WASHINGTON, D.C. — The way things are going, it appears unlikely that anyone can count on taking quick advantage of the cancellation of the foreign attachments tariff by the Federal Communications Commission.

The old tariff, which prohibited the attachment or connection to the public telephone system of any equipment or device not supplied by telephone companies, was scheduled to be voided July 29. But the FCC said the telephone companies could prepare new tariffs which would provide for attachment or connections which were not harmful to the overall telephone system. The FCC said they could specify technical standards for such equipment.

Stay Sought

American Telephone & Telegraph has filed a request with the FCC for a stay of the commission ruling until the FCC can

act on a request for reconsideration that AT&T planned to file July 29, the last possible day to file such a request before the old tariff is dropped, leaving no restrictions.

If the stay were granted, it probably would be for the length of time required for the reconsideration proceedings.

If, however, the stay were denied, AT&T would have to file the new tariffs July 29 to provide continued protection.

The June 27 FCC ruling, which is expected to clear the way for telephone equipment sales directly to customers by manufacturers, was the result of a case brought by Carter Electronics Corp. of Dallas, Texas. Carter makes a device, the "Carterfone," a small cradle-like instrument that can be used to connect private radio systems into the public telephone system by placing a conventional telephone handset into the cradle.

subscribe
to
Computerworld

COMPUTERWORLD
The Newsweekly for the Computer Community

Yes, please send me COMPUTERWORLD for

- | | |
|--|---|
| <input type="checkbox"/> 1 Year \$9.00 | <input type="checkbox"/> Bill Company |
| <input type="checkbox"/> 2 Years \$16.00 | <input type="checkbox"/> Bill Me |
| <input type="checkbox"/> 3 Years \$20.00 | <input type="checkbox"/> Payment Enclosed |

Name _____

Address _____

City _____

State _____

Zip Code _____

Company Name _____

Your Title _____

Company Product or Service _____

Return to:

COMPUTERWORLD, 60 Austin Street, Newton, Mass. 02160

Bureau Owner Hit by IBM Competition

(Continued from Page 1)

• IBM is violating the consent decree regulating its service bureau business.

"The basic problem is that IBM is in competition with one of its own customers, so we have no one to turn to for help," she said. She pointed out that if some other company had gone into competition with her, she could have turned to IBM, her supplier, for help in updating her software to meet competition.

Miss Van Horn admitted that she now thinks that she should have protested the 1966 IBM DataText service (which she believes is improper under the 1955 consent decree signed by IBM) but said, "I was too busy — and they then were no threat to us. Their definition as to what is service bureau business, and what is not, is simply an internally created definition to suit their own purposes. The consent decree defines service bureau business as making reports for others. We do plenty of that — and so do they. The fact that keypunching is not necessary does not stop this from being a violation."

Cost Too Low

Miss Van Horn said she believed that the charges being made by IBM were uneconomic. "We have estimated their costs, using an

Adapso estimating procedure, and we do not think they can make money. We cannot be certain — because we do not know how many terminals the IBM 360/40 will really support, and they have refused to tell us. They say that if we tighten our belts we can stay in business — but we just cannot see it ourselves. After all, their people only have to pay the internal cost of a system — and that's only 40% of list. How much belt-tightening do you need to overcome a 2-1/2 to one discrepancy?"

Outside observers pointed out that the IBM service could minimize hardware costs by selling off batches of time during the second and third shifts. "They could easily just sell a complete shift to the Data Processing Division for program testing — and that would really pull their costs down."

Where Are The Watchdogs?

Salvatore Parisi, past president of Adapso, the independent service bureau association, told *Computerworld* that the organization was watching the matter and felt generally surprised that the watchdogs of the antitrust consent decree (which forbade IBM to engage directly in service bureau business) had not intervened to see whether what

IBM was doing was legal. "I have never liked IBM offering service," he said. "There are bound to be sales costs, and people costs. I am not an attorney — but I must ask if it is in the spirit of the consent decree."

Service Bureau?

IBM spokesmen have said that the service offered was in accordance with the consent decree. The operation of a service bureau, they argued, involved actually taking a customer's job and doing it for him — including preparing the input, the programming, etc. This was not being done with time sharing, and so it was not a forbidden activity, they said.

Miss Van Horn, however, did not agree with IBM's definition of service bureau activity. "They denied us advance information which they gave other customers — because we were a service bureau," she said. "Now they turn around and do exactly what we are doing — but now it is not a service bureau! What sort of logic is there in that?"

In the meantime, VIP Systems, which was expecting to go public next fall, is wondering whether just to cut its losses, or whether to try to enter some completely new field. "I might write a book on Time Sharing Business," said Miss Van Horn's final comment.